The World's Work

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By Courtesy of the Knoxville *Sentinel*

EDWARD T. SANFORD

Appointed by President Harding as Associate Justice of the Supreme Court of the United States. Judge Sanford was Assistant Attorney-General in 1907-08, and since then has been United States District Judge for the Eastern and Middle Districts of Tennessee

THE
WORLD'S WORK

MARCH, 1923

VOLUME XLV NUMBER 5

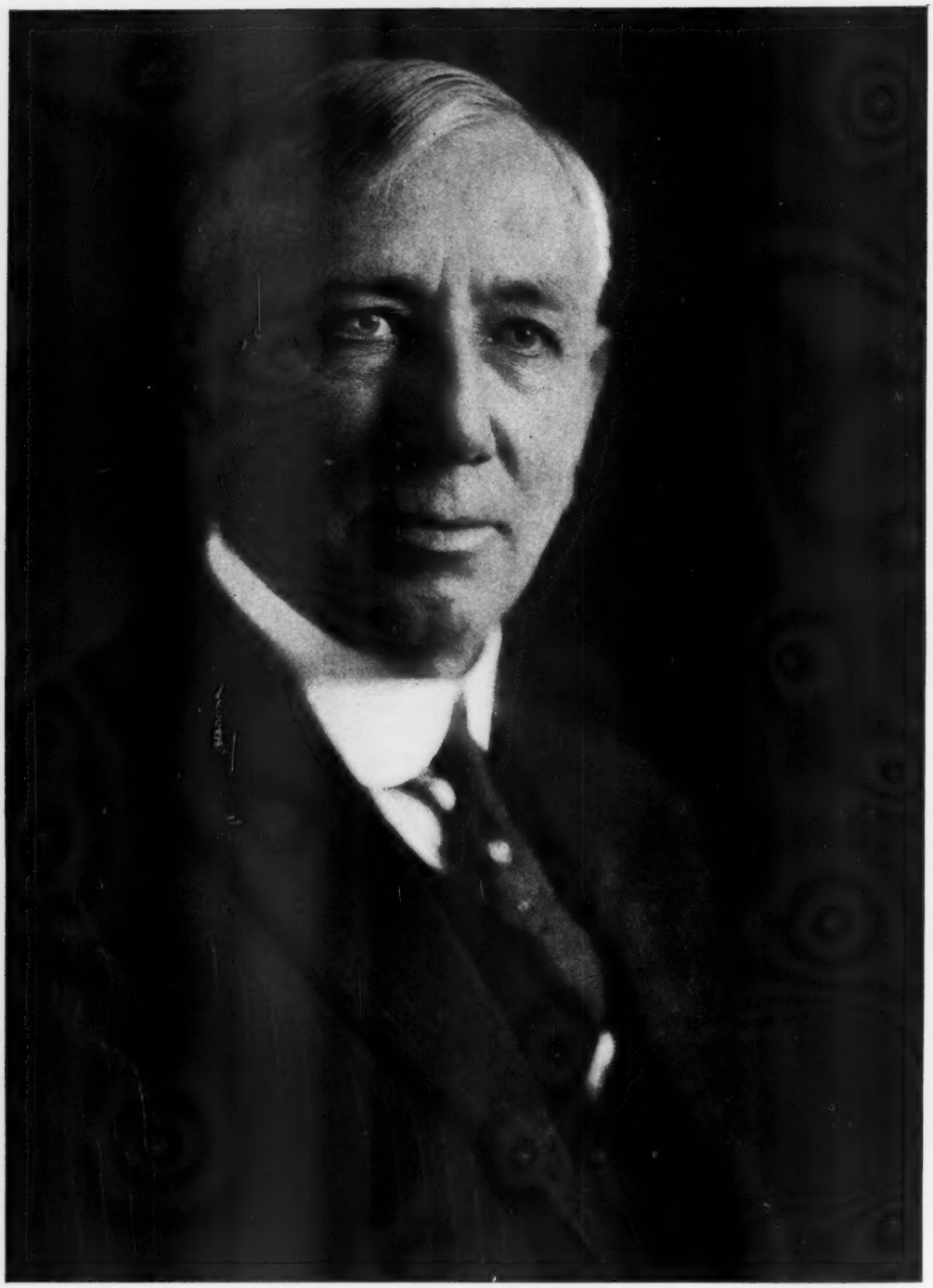
THE MARCH OF EVENTS

PROBABLY industrial history offers no parallel to conditions in the United States at the present time. This country presents a mighty oasis of prosperity in a much distracted world. That the farming regions are not participating in good times to the same degree as other sections is true; yet even here the status is improving. The tendency of prices is to rise; American farms are exporting more products than before the war, and their value has increased more than one hundred per cent. American agriculture is depressed only in comparison with the war boom—a boom that lasted for two years following the Armistice. Practically all other American activities show the most satisfactory condition of health. Retail merchants everywhere report the greatest Christmas trade in their history. Unemployment, which was a serious problem a year ago, no longer disturbs the business scene; the present problem is the scarcity of workers. The United States is now engaged in the greatest building boom in its history. The steel mills have so far recovered from their slump as to be producing nearly 90 per cent. of their capacity.

The textile manufacturers report a similar good fortune; savings banks deposits are constantly going up; and, in a year when the "balancing of budgets" is the great issue in most countries, the Federal Treasury is suffering no embarrassments of this kind. The United States paid off one billion dollars of its war debt in 1922, and there is every prospect that it will be able to reduce it at a still more rapid rate in the years to come. All this merely emphasizes again the tremendous economic power of these forty-eight states, and almost justifies the optimism of those extremists who believe that the Nation has only scratched the surface of its resources—that the progress made in the Nineteenth Century was only a faint indication of that which will be made in the Twentieth.

Yet, amid all these evidences of good fortune, the questioning thought comes to many minds: How long will it continue? Most competent surveyors see only one thing that endangers the present excellent condition of things in this country; and that is a general European collapse. Yet even conditions in Europe, though far less happy than in this country, are not so deplorable as the exciting newspaper headlines would make one think. The export trade of England is 70 per cent. of its pre-war proportions. Austria is improving and Poland has put the larger part of her devastated region into cultivation. Italy has survived the danger of a Bolshevistic revolution and is economically improving. France, being more of an agricultural than an industrial country, is more prosperous than appears upon the surface. Germany and Russia are in a bad condition, it is true, but even in these countries there are glimpses of economic sunlight.

On the whole the outlook, both domestic and foreign, is far more favorable than at the beginning of 1922.



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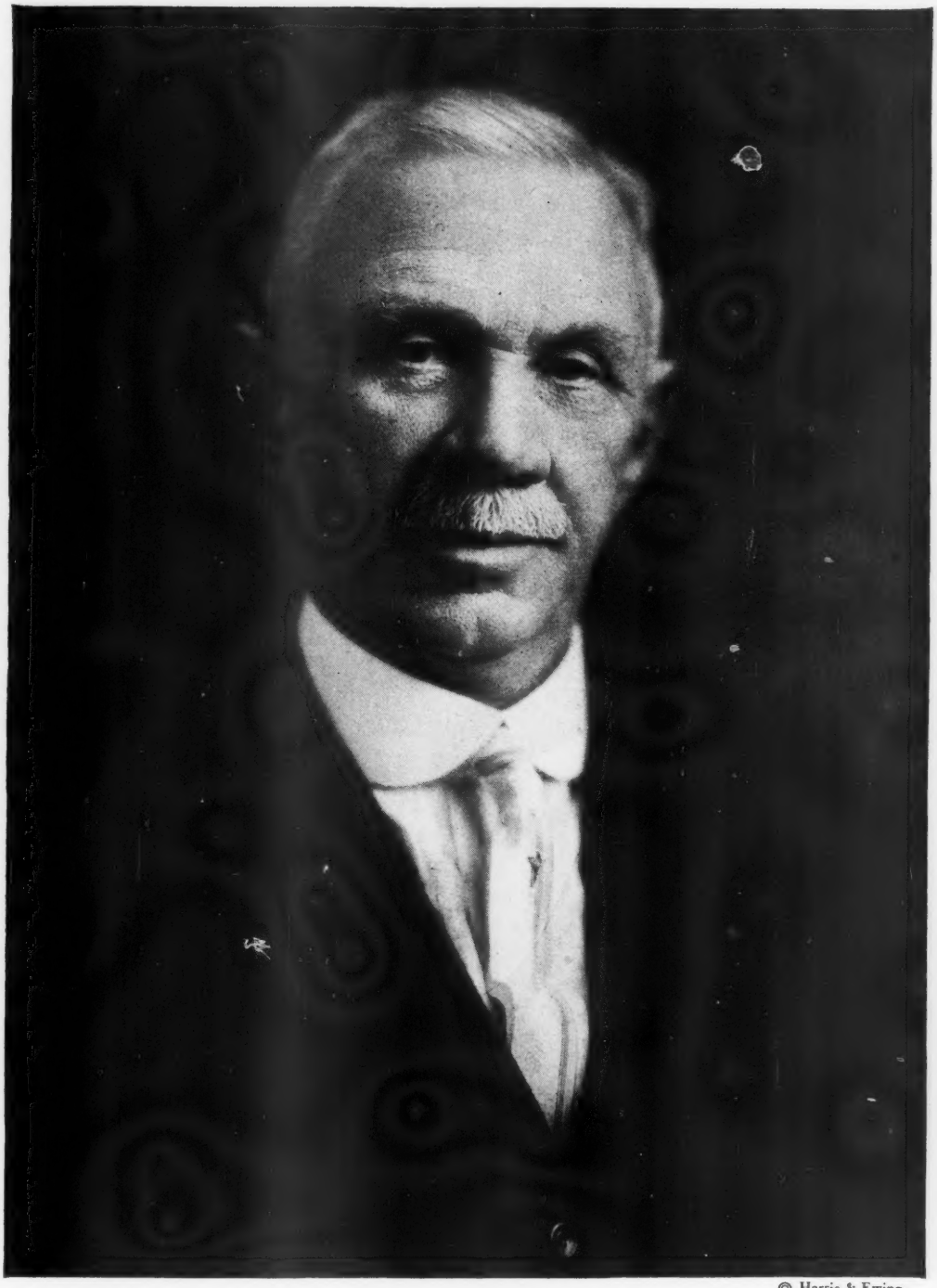
DANIEL R. CRISSINGER

New Governor of the Federal Reserve Board. Mr. Crissinger, who is a lawyer from Marion, Ohio, was appointed Comptroller of the Currency in 1921, and following the expiration of W. P. G. Harding's term as Governor, was appointed to succeed him



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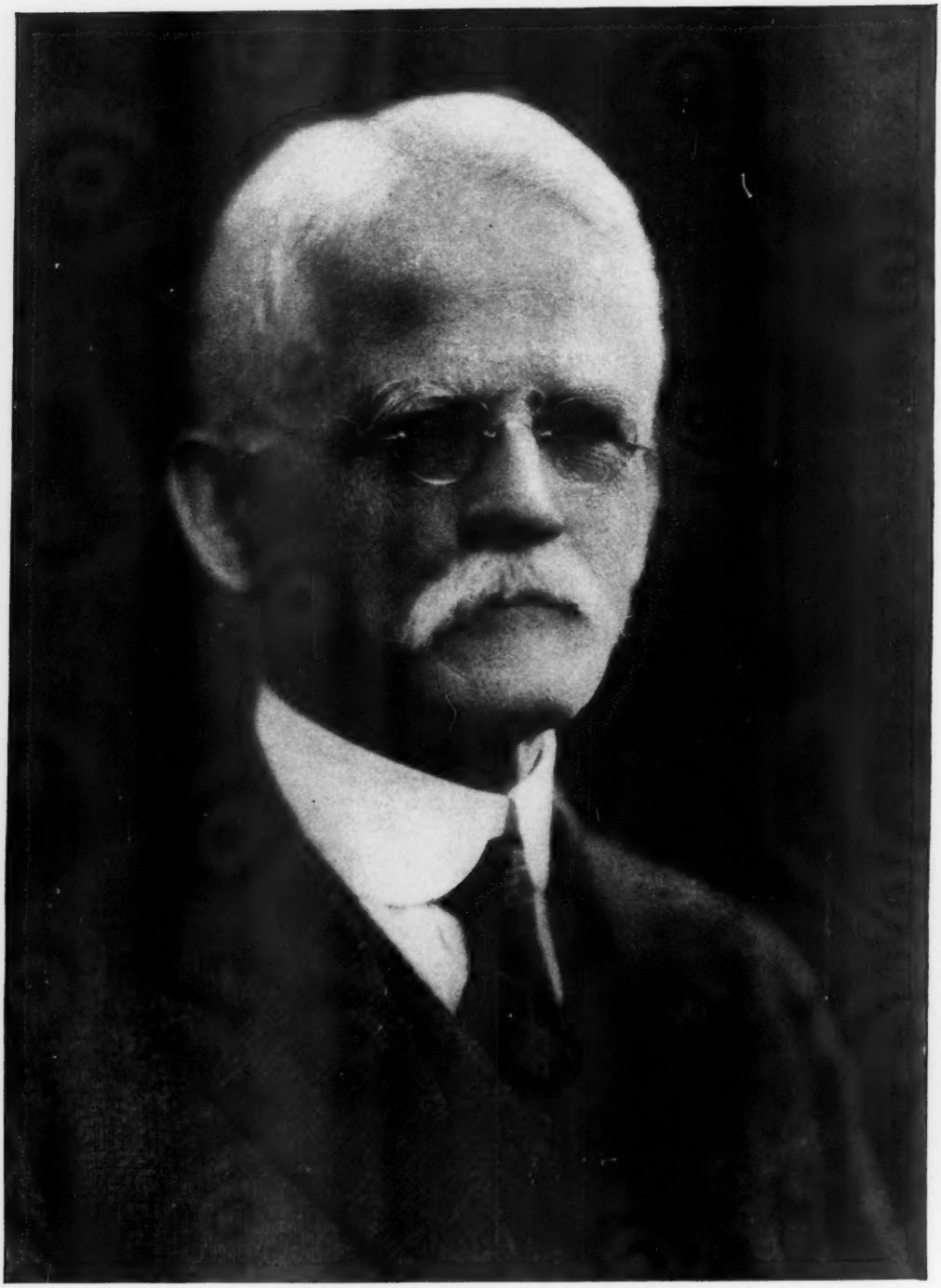
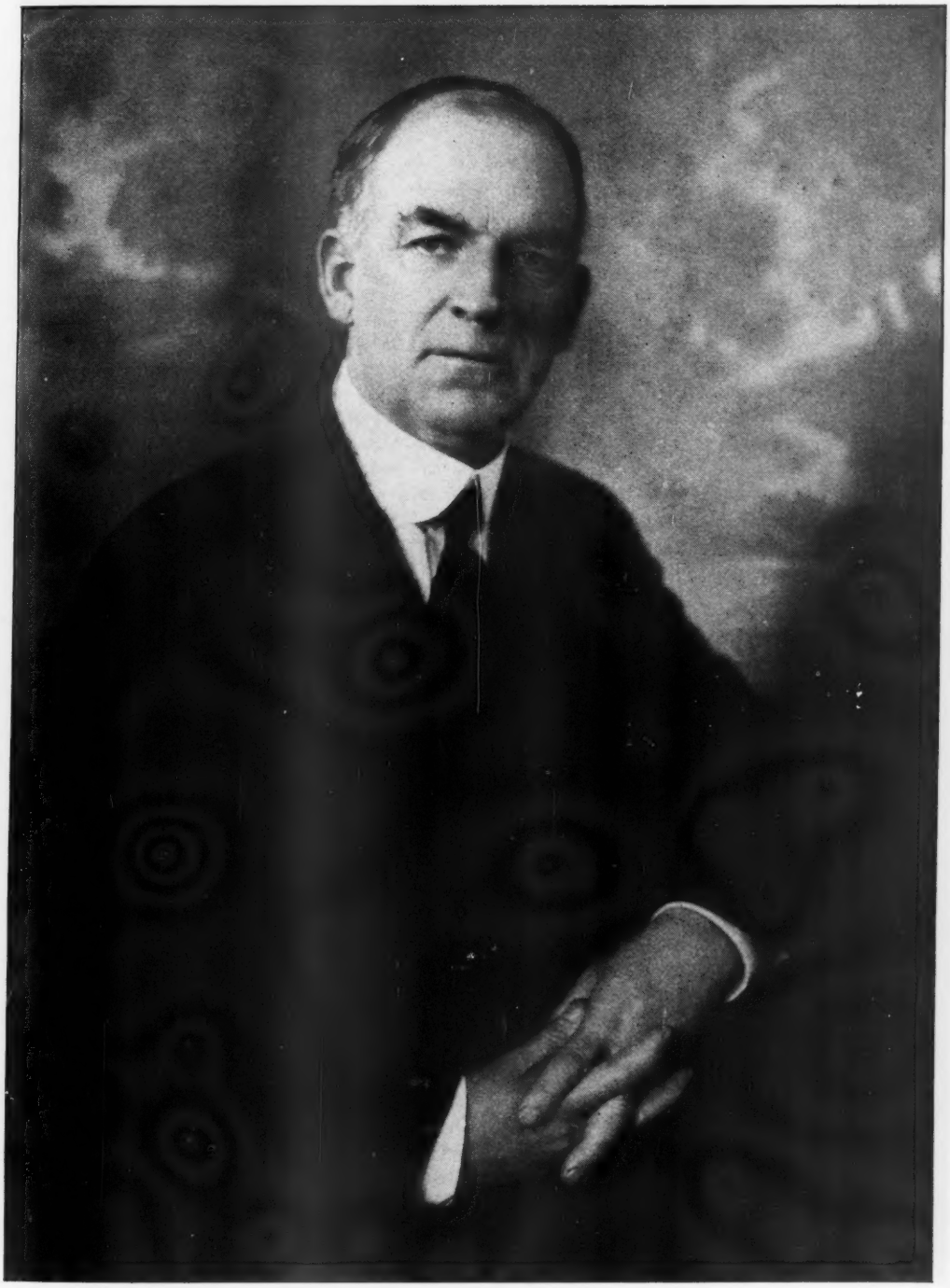
MILO D. CAMPBELL

Appointed to the Federal Reserve Board to fill the position of farmer member, which was recently provided for by Congress. In addition to being a farmer he has been in Michigan politics, and is president of the National Milk Producers' Association



ERNEST DEWITT BURTON

The new president of the University of Chicago. Since 1892 he has been a professor and a department head at the same university, and in addition has been editor, author, and theologian



DR. W. W. CAMPBELL

Recently elected to the presidency of the University of California. Dr. Campbell is an astronomer and since 1900 has been Director of the Lick Observatory

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SIR PHILIP GIBBS

The English journalist and war correspondent whose series of articles on the high lights of his newspaper career begins in this number

[See page 478]

The Supreme Issue—the Security of France

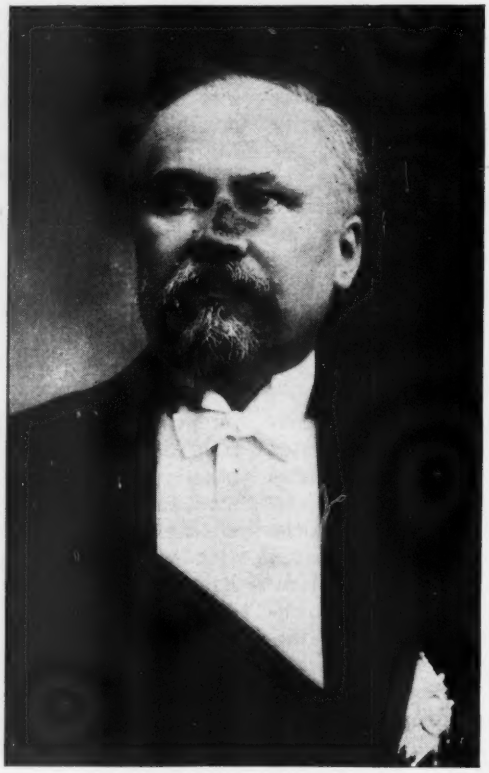
IT IS not surprising that, in all the welter of discussion about coal and indemnities and reparations, the world, and the United States especially, should lose sight of the real issue at stake. And yet that issue has not changed from the day that the Versailles Peace Conference assembled up to the present time. The motive that has directed the thoughts of the French people, and controlled the policies of French statesmen for the last four hectic years is the future security of France. The Peace Conference left the safety of the French people in an unsatisfactory condition and its deliberations have therefore brought no permanent quiet. Not until that question is settled will the world be able to adjust itself peacefully to work and recuperation.

It is especially desirable that the American people get this idea firmly in mind, for it is upon the American people that the solution ultimately rests. A reference to the proceedings of the Peace Conference demonstrates how little progress has been made in this matter since the treaty was signed. The word that appeared most prominently in the discussions that preceded the recent march into the Ruhr was "guarantees"; similarly that was the word which was most conspicuously in the mouths of French statesmen during the famous discussions at Paris and Versailles. Probably the best foundation for the study of the present crisis is Mr. Ray Stannard Baker's recently published "Woodrow Wilson and the World Settlement." Mr. Baker devotes five chapters to describing what he calls "The Dark Period." This represents those difficult weeks in March and April of 1919, which nearly wrecked the Conference. At one time Mr. Wilson, already a very sick man—Mr. Baker reveals for the first time the seriousness of the illness that prostrated the President in Paris—so despaired of any successful outcome that he sent for the *George Washington*, presumably to take the American Commission home. The difficulty all arose from the insistence of the French upon "guarantees"—material protection against another German attack.

The danger was not an imaginary one; it was obvious and appalling. For thirty years such security as France enjoyed had been largely a result of her alliance with Russia. A nation of 38,000,000 was no match for one of 70,000,000, especially when the first was largely agricultural and the latter extensively industrialized. But the knowledge that, east of Germany, a population of 160,000,000 stood pledged to come to the assistance of France in case of need greatly minimized this danger. What this Russian alliance meant France had recently learned; however deplorably Russia may have failed in the final phases of the war, the fact remains that her advance into Prussia in September, 1914, made it possible for France to win the Battle of the Marne. But one of the results of war was the disintegration of Russia and her practical disappearance as a great Power. As French statesmen viewed the Bolshevistic wreck in 1919, the one event that seemed most improbable was that Russia could ever again become a military ally—could ever again play in French history the safe-guarding rôle that she had played from 1892 to 1914. The prospect they were called upon to face therefore was their own 38,000,000 people confronted with 70,000,000 Germans—Germans constantly vowing vengeance for their defeat, maddened by the loss of great territories and great resources.

It was well enough for Americans and Britons to talk of good-will and moral forces; Americans and Britons were not face to face with this tragic situation. Whatever future problems America and Great Britain might be facing, the likelihood of national annihilation was not one of them. And this was precisely the danger against which France felt it necessary to take safeguards. It is therefore understandable that many of the lofty and idealistic sentiments which were then afloat were lost upon M. Clemenceau and other French statesmen. They may be pardoned if they could see no safeguards except material ones. "Sanctions" and "guarantees" now assumed a new meaning in the world's vocabulary. The Frenchmen who were most active in these demands of 1919 were Foch and Poincaré—the latter the President of France, but conspicuous then as now as the chief representative of that French public opinion that demanded a physical frontier against German aggression. Clemenceau was the spokesman and negotiator; always back of him, however, ceaselessly insisting and nagging, stood Poincaré. Mar-

shal Foch's favorite plan for security was the detachment from Germany of the left bank of the Rhine and the creation out of it of a buffer state or states; but there were those who went even further than this. The most startling proposal was the one made by a committee of the Supreme War Council under the presidency of M. Loucheur. This was for the control by the Allied forces of the Basin of the Ruhr. M. Loucheur's plan called for the military occupation of an area extending fifty kilometers east of the Rhine from Cologne to a point fifteen kilometers north of Duisberg—a region which would embrace Essen and the principal Krupp establishments as well as the coal fields and metallic industries. No attempt was made at this time to conceal the purposes of this proposed occupation; they were two, military and economic. Once this region rested in the hands of France, Germany would be unable to make war or to prepare for it. "The importance of this region from the point of view of war in industries," said the report "is so great that it would be practically impossible for Germany, once disarmed, to take up arms if she had not free disposal of it." Not only this, but the possession of the Ruhr was the key to the economic prosperity of Germany. It bore the same relation to the industrial life of the Fatherland that the Pittsburgh area does to the economic life of Pennsylvania. The Loucheur proposal did not contemplate the control of these industries by France; the idea was that the Allies, by maintaining a grip on this country, would have a "guarantee" for the good behavior of their enemy. If Germany maintained her treaty engagements, especially in the matter of disarmament, then she would be permitted to manage the industries of the Ruhr undisturbed; any attempt at evasion, however, could be met immediately by placing an embargo between the Ruhr and the rest of Germany. "The prevention of exportation to the unoccupied German territories of the general products of this section would have the most serious consequences from an economic point of view. If the general munition control is interfered with or if unauthorized production is found to be going on, trade between the occupied territory and the unoccupied territory would be prohibited."



RAYMOND POINCARÉ

Who was President of France in March, 1919, when the French proposal for the invasion of the Ruhr was made to the Peace Conference, and who, as Prime Minister, has recently carried out this plan

The Purpose of France Not Militaristic

THERE were those who in 1919 denounced this proposal as a proof of the spirit of conquest and militarism which had seized the French people just as there are those who are similarly denouncing its realization now. Yet the criticism was no more valid in 1919 than it is at the present time. The motive that inspired France in 1919 was the same motive that has recently prompted the move into the Ruhr. That motive was national security. These drastic proposals represented an attempt to find compensation in military force and military guarantees for the comparatively small population and comparatively small resources of France. In the conduct of nations, as well as in that of individuals, the important considerations, in passing judgment, are not overt acts, but motives; and the French motive,

ESSEN, A HEADQUARTERS OF GERMAN MILITARY AND ECONOMIC POWER
This important industrial centre is now occupied by the French. Without the valley of the Ruhr, the existing German industrial organization cannot be maintained

whatever one may think of the performance, was a worthy one. Self-preservation is the first duty of the state. No nation could have a finer impulse than the determination to save itself from a repetition of the outrage that assailed France in 1914. This was the aim that directed every thought of the French statesmen at the Peace Conference. That both the American and the British delegates sympathized with this French fear the record shows.

That they regarded the French proposals as unwise is also plain. They were unwise not because they inflicted undeserved hardships on Germany—no punishment, even the permanent loss of the Ruhr, would have been too great for the unparalleled crimes of which Germany stood convicted; they were unwise because they could not possibly succeed. There is no way in which a nation of 35,000,000 with a diminishing birth rate, can permanently hold in abeyance a nation of 70,000,000 with an increasing birth rate, when this nation is so energetic, so industrious, and so economically and militarily capable as is Germany. The Peace Conference therefore wisely sought other means of providing France that security which was her due. The "guarantees" provided France were of an extremely substantial kind—far more substantial than the permanent annexation of the left bank and the occupation of the Ruhr. The most important was an arrangement which practically amounted to a defensive alliance with the United States and Great Britain. This alliance existed for only one purpose. It was to come into effect only in the event that Germany made an unprovoked attack on France; in case of such an attack then Great Britain and the United States were to come to her assistance with their full power.

This immediately changed the French prospect. Instead of facing Germany's 70,000,000 with 35,000,000 Frenchmen, France could now add to her own population 100,000,000 Americans and 50,000,000 Englishmen. This arrangement gave France far greater security than the old Russian alliance had ever provided. Great Britain and America were greater not only in resources and wealth than

the decadent Romanoff empire; they were greater far in character, in prestige, in democracy and justice. With this guarantee France emerged from the war far stronger and more secure than her statesmen had dared to hope. Her chief thought and energies could now be expended in reconstructing the nation on modern lines, in developing that art, that science, that literature, that high grade industry and those ideals of liberty and progress which represent the great French contributions to civilization. The darkening fear of a generation had been removed. The mere existence of this British-American compact would make inconceivable any attack from across the Rhine. Naturally the French accepted this proposal and dropped their other fantastic "guarantees," including the occupation of the Ruhr. Clemenceau emerged triumphant and Foch and Poincaré, chief spokesmen of material guarantees, suffered a temporary eclipse.

French Policy Since the Peace

BUT the American Senate promptly quashed this plan. The tripartite treaty was entirely dependent upon ratification in Washington; a special clause provided that, unless the American Senate approved, then the approval of Great Britain became inoperative. After peace was signed France found herself without guarantees of any kind. She had given up her plan of securing material safeguards in the expectation of a defensive alliance with the United States and Great Britain and in this she had failed. What then, was she to do? Evidently the only path left was to revert once more to the interrupted programme of material guarantees. This necessity explains practically everything that has happened since the failure of the Versailles Treaty in the United States.

In particular it excuses most of those acts which have brought such unbridled criticisms upon the head of our sister republic. It explains why France, despite a bankrupt treasury, has kept ready for action a standing army—of about 700,000 men—powerful enough to dominate Europe. It is well enough to urge that the expense of maintaining this army means financial ruin; the French believe that national extinction is worse than financial wreck, and that the abandonment of these forces, or even their material reduction, would mean an early war with Germany. In this apprehension France is unquestionably justified. The intrigues of which France has been guilty in the Near East really have their root in the same fear. France must develop economically and commercially if she is to maintain her standing as a great power; to do this she must possess her share of the natural resources upon which the economic future depends. The oil and minerals of the earth are as indispensable to her as they are to Great Britain. The behavior of France at the Washington Naval Conference injured her in the eyes of the American people; yet here again the fear of national decay, of the loss of economic power that would make her an easy victim of Germany, was a sufficient explanation. A pathetic illustration was the plea for submarines, in order to convoy Senegalese troops to France in case of another German attack.

It would be possible to review practically every French policy in the last four years; the fear of national destruction animates every thought and act. This fear is something which her former allies cannot grasp; England, surrounded by salt water, with the German fleet lying at the bottom of the sea, and the United States, with three thousand miles of ocean on one side and six thousand miles on the other, can hardly understand the constant dread that hangs over the French nation. Let Americans imagine for a moment that Canada, instead of being populated by 8,000,000 friendly people of the same race, the same language, and the same national traditions and aspirations, contained a population of 200,000,000 of alien race and purposes, who were constantly increasing in numbers while we were decreasing, who had lived for centuries in the perpetual atmosphere of military adventure, and who were constantly looking forward to the day when their accumulated armies could cross the frontier. Imagine, further, that we found no allies willing to risk a defensive alliance with us and that our industrial resources were much feebler than those of our neighbor. Such a situation would somewhat resemble the danger that now overhangs France. If, under such circumstances, Americans held their old time foes temporarily in their power, if we had the ability to strike a blow which we believed would forestall the impending attack, at least for a considerable period, it is not at all unlikely that we would be tempted to use it.

The Ruhr as a "Guarantee"

THIS, then, is really the motive that has inspired the present occupation of the Ruhr. The search for coal is only one detail; the important consideration is the security of France. Events of the last four years have brought the Republic to precisely the same point that she had reached at the Peace Conference. France must have "guarantees." The really effective guarantee of a British-Franco-American Alliance having failed, the proceedings of four distracting years having apparently hopelessly separated France from those Allies with whose coöperation she won the war, she is now compelled to rely upon herself for protection. And the remedy brought forth is precisely the same one that was suggested in March, 1919—the occupation of the Ruhr. The arguments in favor of this have the same force in 1923 that they had in 1919. Such an occupation will destroy Germany—at least for a considerable time—both militarily and economically. It is easy, as American Senators have discovered, to criticize this programme, the fact remains that it is the only thing left for France to do.

GENERAL MANGIN

A leader of the French policy of physical guarantees for the future security of France. The French programme is not militaristic; it represents merely the determination of taking safeguards, while France still has the power against another assault like that of 1914

Yet the situation is still tragic. The arguments against the French occupation to-day are the same as in 1919. There is a general conviction that it cannot succeed. France cannot destroy the military and economic power of her ancient enemy; the most she can hope for is to check her momentarily. Germany is too populous, too ambitious, too determined and—for the fact must be admitted—too capable. The mere seizure of the German coal mines and industrial plants does not mean that Germany will disappear as an industrial nation. Even though France should annex these regions permanently she could not stifle Germany as an economic power. A fallacy that crops out in most discussions of the economic future of Europe is the idea that the possession of raw materials determines the industrial status of a nation. The mere fact that a nation does not possess within its own borders the materials of manufacturing does not mean that such a nation cannot become a great manufacturing country. Great Britain has built up her industries by importing raw materials from the four quarters of the earth, transforming them into finished products, and selling the results in foreign countries. Lancashire is the greatest cotton spinning region in the world, yet it is removed three thousand miles from its sources of supply. The wool that is transformed into English fabrics comes largely from Australia and other outlying regions. New England is another striking illustration of a great manufacturing region which is practically destitute of raw materials. Thus the mere fact that France controls the Ruhr, the Saar, and Silesia, the main headquarters of coal and iron essential to Germany's great industries, will not inevitably mean the end of German industry. The main resources of a nation are the energies and abilities of its people; given these, the raw materials can be obtained and the manufacturing done. Germany possesses these in large and increasing degree and this is the reason why any attempt to crush the nation economically will fail. Injured temporarily Germany may be, but German determination and German resourcefulness will ultimately solve the problem. Perhaps, if France could detach southern Germany from Prussia, she might be able to

compete industrially; there are those who regard this as her ultimate purpose; but any such development is remote.

The Solution in American Hands

THUS the present situation is precisely the same as that which confronted the Peace Conference in the "Dark Period" of March and April, 1919. The outstanding world issue is the security of France. The alternatives now are precisely the same as they were then. France must obtain powerful allies pledged to support her in case of an unprovoked German attack, or she must place all her trust in her own right arm. The latter outcome may fail in its object—it probably will—but it is the only thing left to try. As in 1919, there is only one nation that can furnish such a guarantee and thereby safeguard the peace of Europe, and the world. That nation is the United States. Great Britain will gladly join this country in a common action, but Great Britain cannot act alone. Americans should clearly understand the decision that rests with them. They have two alternatives; one is to break with Europe politically, to become a hermit nation; the other is to use their resources and power to extricate Europe from her agony. The consequences that will follow the adoption of either of these policies are as clear as the alternatives themselves. The first means that Europe will be given up to war, to economic and political chaos, practically to dissolution; and that is the course to which it is started now. The second means its restoration. Perhaps this nation has no duty in the premises; the policy of isolation is one that can be defended, politically and morally; but it would be a mistake to discuss the future without a clear understanding of what the American decision means.

America's Material Support Needed in Europe

FROM present indications this country has decided upon the former course. We are to keep out of Europe, at least for the time being. Certain Senators and certain newspapers have fallen foul of the President and Secretary Hughes; the "lack of policy" in Washington forms the burden of these complaints. There has been an absence of inspiring leadership, and for this the Administration must take its share of blame, yet the fault does not rest exclusively with the executive department. The decisive fact is that there is no solid body of public opinion urging the President into an active participation in European affairs. And an active participation is the only thing that would produce results. There is now a general feeling that the time has passed for so-called "moral influence," "observers" and similar manifestations of a gingerly benevolence. Europe really cares nothing for America's "moral influence"; in her present distracted condition Europe does not want advice—she wants help.

Unless this country is prepared to help effectively and materially, it would comport better with our national dignity to cease talking of the tremendous part the United States can play in the rôle of moral dictator. What Europe needs is money, credit, military guarantees; without such practical aid we can accomplish nothing. What signs are there that the American people are prepared to assist in such tangible fashion? There is a good deal of unorganized opinion favoring action; the agricultural regions are even beginning to realize their dependence upon European stability; certain Senators and Representatives now and then reflect this new consciousness; and perhaps a more stimulating leadership in the Administration might intensify this popular thinking to a point where it would result in direct action. It is also plain that any aggressive policy would at once precipitate a prolonged struggle with the Senate; and the Administration evidently dreads such a conflict. The attempt to settle the foreign debts hardly encourages those who believe in additional assistance to Europe. Far from extending further credits to Europe—and credits, either from the American Government or from American bankers Europe must have—Congress seems disposed to demand a settlement of those already outstanding on terms which Europe cannot possibly meet. Nor is there apparently any chance of reviving that plan for a military guarantee which offered four years ago, as it offers to-day, the only solution of the impasse.

This explains the slow progress the Administration has made toward defining the terms upon which America can approach the European problem. The 7,000,000 majority received at the 1920 election—a

majority evidently interpreted, rightly or wrongly, as measuring the distaste of the American people for European entanglements—still paralyzes effective action. That the election last November showed a great loss in popular favor is true, but apparently Washington sees in this no mandate for decisive action. In his New Haven speech Mr. Hughes indicated the point the President had reached on this great question. The most important statement was the announcement that the European situation, in the view of the Administration, was an American question. "Washington", said Mr. Hughes, "has the greatest concern for the economic situation in Europe." "It has long received the warmest consideration of the Administration." The United States is interested for two reasons: "from an economic standpoint, as our credits and our markets are involved," and "from a humanitarian standpoint, as the heart of the American people goes out to those in distress." "We cannot dispose of these problems," said Mr. Hughes, "by calling them European, for they are world problems and we cannot escape the injurious consequences of a failure to settle them."

Evidently, therefore, the present Administration is pledged to some kind of action in Europe—or at least it is pledged to the view that the welfare of the American people demands some kind of action. As a profession of faith this speech represents a positive gain; it sounds the "keynote" of a possible programme. If the direct proposal with which Mr. Hughes followed this statement seems somewhat weak, the explanation is that, in face of a hostile Senate and a divided public, Washington evidently feels it necessary to approach the subject warily and by slow, indecisive stages. Mr. Hughes suggested the organization of an International Commission of Experts, on which Americans could serve, to determine what Germany can pay and to map out a financial plan for paying it. The latter proposal is the only one that is to the point. Both France and Great Britain came to an agreement at the recent Paris Conference, as to what Germany could pay—the figure was placed at about $12,000,000,000; the difficulty was to decide methods of collecting the money. But, in making such a suggestion, Mr. Hughes was probably not thinking about planning in advance the work of the Commission. The main idea was to get Americans actively engaged in the great work of doing something for Europe. It was intended as merely the beginning of a coöperation which would probably develop as it progressed, and, as such, it was worthy of rather more support than it received, either in this country or in Europe.

Governor Alfred E. Smith and the Presidency

ANY man who can be elected Governor of New York State by a plurality approaching 400,000 inevitably becomes a political figure of national importance. This is especially the case if he happens to represent the Democratic party, for the members of that organization are naturally on the scent for a candidate in 1924. Governor Alfred E. Smith is a Presidential possibility by virtue of these circumstances; there are plenty of signs that his political followers are eagerly awaiting the chance of promoting his presidential fortunes; there are even indications that he is not unmindful of them himself. What kind of a man, therefore, is Mr. Smith? What are his political beliefs and aspirations? To what extent do his mentality and political character fit in with the needs of the time?

Mr. Smith is a striking illustration of the influence exercised by personality in advancing a political career. He is precisely the kind of person whom the American people like and even love. His large family, his aged mother to whom his devotion is so touching, his cheery intimacy with almost every human being with whom he comes into contact, his lively spirits, his laughter, his emancipation from the rigid rules of grammar and rhetoric, his insistence in regarding government as primarily a human relationship and only secondarily a legal one—these are the traits that, when combined with a rugged honesty and a wide knowledge of public affairs, appeal strongly to the "common people." Presidential booms have been constructed on much flimsier grounds than these. Mr. Smith is a man of Irish antecedents and of Tammany affiliations; he embodies the more engaging qualitites which have made this race and this political organization powerful forces in our politics. The success of Tammany depends almost entirely upon the personal, human relation-

ship which it establishes with its adherents. It is really a great tribal organization, a clan, in which personal loyalty to the chieftain is the bond that holds the ranks together. The chief and sub-chiefs, on the other hand, retain their followers by constantly maintaining an intimate daily association with them. The essential qualification of a district leader is that he be genial, sympathetic, helpful in all the minor tragedies of life, a man who can meet the immigrant peoples of New York as one of themselves and bring them a sense of companionship and coöperation. These are the qualities embodied in "Al" Smith—the fact that he is generally known by this diminutive of his first name indicates the affection which his presence inspires. He is himself a product of the New York tenement district; he was born on the East Side just about fifty years ago. The only formal education he received was at a New York parochial school; a devout Roman Catholic, his religious belief is of the simplest, unquestioning kind; he accepts the Bible with a literalness that would delight Mr. Bryan and the Fundamentalists. Of such abstractions as Darwinism and evolution he has probably heard only the names, and of what is usually known as "book learning" Governor Smith possesses practically nothing. One evening he was seated at dinner next a lady who had considerable claim to literary cultivation and who tactlessly directed the conversation into what, for Governor Smith, were uncharted seas. To her repeated queries as to whether the Governor had read certain recently published books Mr. Smith returned several unembarrassed negatives. Finally he broke out:

"I have read only one book in the last five years, but it's a corker and I recommend it to you."

"What is that?"

"The Life and Battles of John L. Sullivan."

At another time, when certain pretentious gentlemen were discussing in his presence their academic degrees, Mr. Smith announced that he also possessed one. His proper designation, he said, was "Alfred E. Smith, F. F. M." Questioned further he explained that the mysterious letters meant that he was a graduate of the "Fulton Fish Market." It was as a clerk in a fish stall that the future Governor began his business career.

Yet these anecdotes make up only part of the Governor's personality; taken by themselves they give an entirely false impression of his attainments. For the fact is that Governor Smith possesses abilities of a high order. He is generally recognized as a great authority on the intricate business affairs of New York State. As leader of his party in the New York legislature he demonstrated a knowledge of public affairs, and an ability to wield his influence in the interest of the party programme, which astonished his opponents and won their admiration. His greatest reputation was won as a member of the convention called in 1915 to revise the constitution of New York State. In this gathering the two "master minds" were Elihu Root and Mr. Smith; and Mr. Root went out of his way to eulogize the great grasp which his young associate possessed on all the details of the public business. This work made Mr. Smith the successful candidate for governor in 1918; in his first two years he manifested administrative talents of a high order. And of his personal honesty there has never been the slightest suspicion. After two years' freedom from Albany, during which he devoted his time to managing a trucking company, Mr. Smith entered the governorship campaign again last fall, not because he had any desire for public office, but solely for the purpose of defeating the political ambitions of William Randolph Hearst, who, except for Mr. Smith's popularity, would probably have become the candidate. He won by a vote for which a parallel—and it is a significant one—can be found only in that of Grover Cleveland forty years ago.

The legislative programme proposed by Governor Smith in itself indicates that Washington forms a part of his present prospect. It contains many items of a substantial character, such as a state budget, a short ballot, and the reorganization of the crazy-patchwork that now make up the executive departments into something that resembles system and order. It contains other provisions which, a few years ago, would have been regarded as "advanced." Mr. Smith wishes to establish the Initiative for constitutional amendments. He would ratify amendments to the Federal Constitution by popular vote. He stands for state ownership and state control of water-power companies, a minimum wage for women and children, a legislative enactment that labor is not a

commodity and a law prohibiting injunctions in strikes without prior hearing and determination of facts. These proposals are not especially startling, nor is there much apprehension that a man of Governor Smith's religious affiliation and social history will develop into a "radical." Naturally his interest in the masses is his first enthusiasm, and for "welfare legislation" he has always manifested great aptitude. In the present absence of presidential material in the Democratic party, Governor Smith's pretensions will naturally receive consideration.

Shocks to American Complacency

THE brighter outlook for life in the United States and the freedom we enjoy from many of the ills that afflict Europe are too likely to cause a national spirit of congratulation and complacency. Fortunate as the country is, there is no reason why we should ignore certain prevailing American problems that are almost as difficult and far-reaching as Europe's own. Several recent happenings have called emphatic attention to one of the greatest shortcomings of the American character: that is the tendency to lawlessness. President Harding has done well in appealing to the masses for assistance in the enforcement of the Prohibition Amendment. The rights or wrongs of prohibition are not the important consideration, for even the most zealous advocates of the new régime will admit that there is one thing that is even a greater evil than alcohol itself, and that is the persistent and wanton disregard for law. How extensively the Volstead Act is openly disregarded in all parts of the country, is not clear; but there seems little doubt that in the great cities, the chief headquarters of wealth and prosperity and consequently of pleasure and of dissipation, violations are constant and even flagrant. President Harding's manifesto is thus a call to what should be one of the finest instincts of a democracy. As President he simply asks his fellow citizens to obey the law; and it is a poor type of citizen who will not respond to this fundamental request.

Unhappily, this habit of lawlessness appears in other things than a contempt for prohibition enforcement. Sir Basil Thomson, for several years the head of Scotland Yard, has recently called attention, in his American lectures, to the unquestioned fact that crime, especially of the violent kind, is more prevalent in this country than in England. That a disparity exists which is hardly flattering to this country has long been known, and in other crimes than those of violence the record is similarly unfavorable to the United States. The annual record of lynchings likewise shocks all patriotic Americans. It is true that the tabulation for 1921 shows a slight improvement over that for 1920; only 61 persons were done to death in this barbarous fashion in 1921, as contrasted with 64 the year previously; this slight gain, however, is not comforting in view of the extent to which the processes of law have been disregarded. The time has passed when it was necessary to argue against lynching. In the South, where the larger number of lynchings take place—though not all of them—the best forces condemn the practice and are working for reform.

Two outbreaks of lawlessness, on a grand scale, have especially shocked the American conscience. The holocaust at Herrin, Illinois, where 24 non-union workmen were massacred in cold blood, and many others wounded, was a proceeding that suggests Turkey rather than the great American democracy. The fact that, so far, no men have been punished for this outrage, necessarily intensifies the public disgrace. The recent murder of two citizens of Louisiana, under conditions that seem to cast the blame upon the KuKluxKlan, is one of the most appalling events in recent American history. That American citizens can be put to death by hooded and lawless bands, and not only murdered, but tortured, is one of the most terrible facts in our contemporary life. It sometimes needs a shock of this kind to awaken the public conscience to the wide-spread prevalence of an insidious evil, and there are few who do not regard the existence of this organization, and its daily increasing audacity, as such an evil. In reconstruction days the only justification for the Ku Klux, as of the Vigilantes in early California, was that the constituted system of law had disappeared—that its administration was itself in the hands of a mob, and that some method of maintaining order, even an irregular one, was essential to the public safety. Whether that argument was fallacious or not, it is clear enough that it has no

THE BUILDING THAT CONTAINS THE EXPENSIVE PENSION RECORDS AT WASHINGTON
President Harding's veto of the Bursum pension bill not only saves the country $108,000,000 annually, but indicates the strong stand the Administration is taking against such unjustified attacks upon the public treasury

application at the present day. Society cannot exist so long as a group of unofficial citizens, who have been entrusted with no powers by their fellows, assume the right to banish, whip, murder, and torture certain members of the community, who, for one reason or another, have fallen under their displeasure. The logical extension of this system means anarchy and barbarism—it is a slump back into the Stone Age. The Ku Klux is the same kind of an organization as the Italian Mafia and Black Hand; it is an attempt to substitute private vengeance for the operation of law; it is an extreme manifestation of that disrespect for law which is shown by the attitude of certain sections toward prohibition, by the crimes of lynchers and lawless strikers. The process of improvement is one of "reëducation"—of inculcating in the American mind, especially the mind of the young, a deep reverence for that law which the best conscience of the majority has decided is wise and just.

Soldiers' Widows and Their Pensions

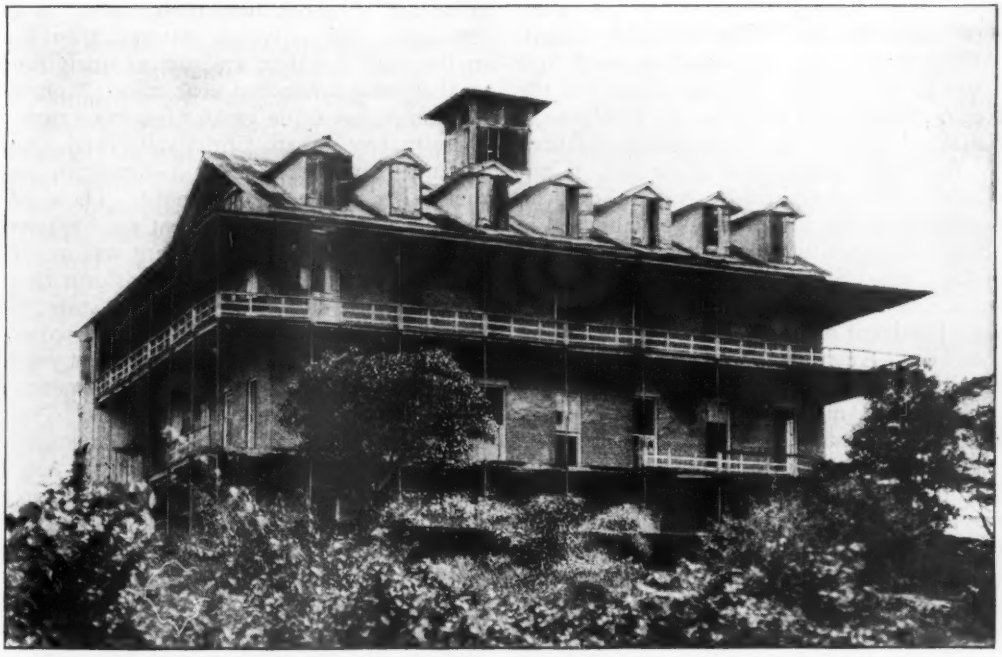
IN ONE way President Harding is daily exalting the standards of his office; and that is the increasing stiffness which he is manifesting against wanton raids upon the public treasury. His action in vetoing the Bonus Bill has given him a strong claim to public esteem; his similar treatment of Congressman Bursum's pension bill only increases the public obligation. So far as the executive veto can prevent these almost endless schemes for appropriating public money for private purposes, the American people is apparently well protected for two years at least.

The disapproved measure provided pension increases of from $50 to $72 a month for Civil and Mexican War veterans, an expenditure entirely unjustified in morals or patriotism or the condition of the public treasury; this feature was sufficiently iniquitous, but the detail that apparently most offended the President and the public conscience was the one which provided pensions for the widows of Civil War veterans. "Frankly," said President Harding, "I do not recognize any public obligation to pension women who now, nearly sixty years after the Civil War, become the wives of veterans of that war." The President has hit at one of the most hoary abuses of the pension system. That the women who were wives of soldiers in war time, or who subsequently became their wives at a time and under conditions that left no suspicion as to their motives, are entitled to participate in their pension benefits, no one denies; but the adoption of such a provision

as that contained in the Bursum Bill would result in the most scandalous proceedings. It would immediately start a new kind of matrimonial industry; a horde of not over scrupulous women, sometimes extremely young, would begin marrying feeble war veterans with the definite idea of qualifying for a pension after their husband's early-expected and even hoped-for demise. The managers of old soldiers' homes could tell many stories of this kind. Young women, not of the highest character, have haunted these institutions, seeking to wheedle old soldiers into matrimony; certain provisions of the intricate pension laws, in the past, if not now, have furnished the opportunity for this sort of enterprise. Any additional stimulus, such as was evidently supplied by the Bursum Bill, would have been a public calamity. Yet so stealthily are these inroads upon the money of the taxpayers conducted that most people had never heard of this plan to add $108,000,000 to our pension expenditures until President Harding gave the information a resounding echo by vetoing the bill.

A Melancholy Centennial for Liberia

IT IS not a glowing picture of the success of Liberia which is presented in the recent survey of "Education in Africa" published by the Phelps-Stokes Fund. This African republic began its career in 1822; it has therefore just passed its centennial year. Its origin in a way suggests the present Zionist movement. The purpose was to create a "national home" for American Negroes in the ancient headquarters of the African race. It was hoped that these representatives of their people would succeed in establishing an orderly, democratic government on the American plan, that they would introduce education, agriculture, industry and transportation and thus form a leavening for the growth of modern civilization in the Dark Continent. This was the great programme; and there were other motives not unrelated to political conditions in the United States. The Southern States at first supported the scheme because they possessed a considerable number of free Negroes who were inconvenient for several reasons and



LIBERIA COLLEGE

Liberia has just passed its centennial, though not very gloriously. This is Liberia College in disrepair and now unused. The fact that the Negro Republic spends only $873 a year on state education is one indication of the extent to which it has failed to fulfil the expectations of its founders

MARKET PLACE IN MONROVIA

The capital of Liberia was named after President Monroe. The United States is now contemplating a final attempt to make Liberia a success by lending the Republic $5,000,000

whom they planned to deport to the newly established republic. The American Colonization Society—an organization that still exists—believed that the only solution of the Negro problem was to return the ex-slaves to Africa. Under these circumstances, financed by American money and protected, if not officially at least practically, by the American Government, the new nation was launched in 1822. Its constitution was modeled on that of the United States and its chief city, Monrovia, was named after the statesman who was then President of this country—James Monroe. But American Negroes showed no particular desire to leave their comparatively comfortable American homes and settle on this insalubrious and undeveloped West African coast; a few thousand, however, did venture and such prosperity as the Republic has attained in a hundred years is owing to them and their descendants. Of the population, variously estimated from 1,000,000 to 2,000,000, about 15,000 trace their origin to this American migration.

Yet the present condition of Liberia is exceedingly precarious. Probably not more than 30,000 Liberians have attained anything that remotely suggests European civilization; these are scattered almost exclusively along the coast; the 1,500,000 natives, who live in the back country, are just as uncivilized as they were a hundred years ago. Mohammedanism has made greater headway among these natives than Christianity and their attitude towards the Africo-American elements has never been friendly. These aboriginal elements have apparently not grasped the fact that a great experiment was in progress whose purpose was to transform them into energetic citizens of a modern state; for the present report indicates that their condition has scarcely changed in a hundred years. Nor has the small minority of American Negroes achieved any real success. Their status, indeed, is described as deplorable. Monrovia, a city of about 4,000, is not a magnificent capital; its streets are commonly overgrown with weeds; its warehouses and business buildings are low sheds; Liberia College, the chief educational institution, is in such a dilapidated condition that it is no longer used; there are practically no roads leading into the interior, and few signs of business. The status of education is illustrated by the fact that the government appropriation for this purpose in 1921 was

$873.75; such schools as exist are the missionary enterprises of Methodists, Baptists, Lutherans, and other denominations. The finances of the country are absolutely bankrupt.

One explanation for this failure is that the American Negroes who embarked upon this experiment had an altogether restricted view of the democratic order. The larger number came from the Southern States and they introduced many of the political and social ideas that generally prevailed in the South in the days before the war. One of these was the necessity of a ruling class—a kind of an aristocracy; just as the planters comprised this order in the Old Cotton Kingdom so did these Southern Negroes arrogate to themselves such a privileged position among the savage peoples of the Liberian coast. Such educational opportunities as exist they keep exclusively in their own hands; they have almost the same attitude towards the savage tribes of the interior that the white people of the South manifested towards themselves. These Negroes also brought from their American home the idea that democracy was almost exclusively a matter of government. Once they had provided a president, a vice-president, a senate, a house of representatives and the other traditional agencies of popular government they imagined that they had created a self-governing enlightened community. On purely speculative questions of government these Liberian Negroes have always been extremely keen; one of the most pathetic and suggestive discoveries made by the Americans who examined the abandoned university was a mass of not badly written essays and orations discussing with considerable ability the political ideals of Washington and Jefferson. But the real tasks of democracy, such as popular education, the development of agriculture, the exploitation of natural resources, the building of roads, sanitation, and the like, the Liberians have ignored for a hundred years. It is because they have made practically no progress in laying these foundations that their experiment has gone to the wall.

If it is ever to succeed, it is along these lines that the work of resuscitation must be done. And this is the proposed programme. Congress is about to vote Liberia a loan of $5,000,000 to be expended, under American supervision, in the reconstruction of the country. About half will be used to refund existing indebtedness; the rest will be expended on public roads, telegraphs, harbor improvements, sanitation, water supply, instruction in scientific agriculture and other similar purposes. This loan really represents a last attempt to make Liberia a success. That the United States has a certain responsibility is evident; the fact that the expenditure will be controlled by American agents, who will collect the customs revenues and financially administer the country, makes it entirely safe from a business point of view. For Liberia is a country rich in resources. Its soil is fertile; it abounds in minerals and products which are readily sold in the markets of the world. The customs revenues, properly collected, form a fund sufficient to meet the interest on the proposed loan, and leave a margin for other public purposes. As a piece of finance, therefore, the transaction is a justifiable one and as a piece of philanthropy it is even more so. Americans generally will applaud this plan to give Liberia a new start and all American friends of the Negro race will wish it every success.

Twenty Years of Aviation

CONGRESS could celebrate in no more appropriate way the twentieth anniversary of the invention of the airplane than by passing Congressman Hicks's bill for the creation of a Bureau of Civil Aviation in the Department of Commerce. The famous flight of Wilbur Wright at Kittyhawk in 1903 marked the beginning of aviation and, as such, it signifies one of the greatest dates in the history of transportation.

Lloyd's rate for insurance against accident is lower with an airplane than with any of the mechanisms of surface travel. It is possible to travel from almost any important city in Europe to almost any other by airplanes operating on regular schedules. Several air routes have already been established from the continent to Egypt, Africa, and Asia Minor. Yet in America the provincial notion still too generally prevails that the airplane is dangerous; the newspapers still make much of any accident; the truth is that, however, although air travelling has its dangers, serious calamities are really very rare—much rarer per machine engaged than in the case of the automobile. The reason for this is

WILBUR WRIGHT FLYING AT PAU, FRANCE

The twentieth anniversary of the invention of the airplane directs attention to the comparative neglect of this great discovery in the land of its origin and the attempts now being made to extend its commercial use

obvious enough. The atmosphere furnishes the smoothest "roadway" known; it does not have its hills or valleys or bumps or precipices or sharp turns; there is only one thing to run into and that is another aeroplane. Provided the machine itself is safe and managed by an expert, the chances of a collapse are really pretty remote.

One of the chief purposes to be served by Congressman Hicks' bill is to remove such possible sources of danger as still exist. It will be the duty of the proposed Bureau to lay out air routes, establish airdromes, license pilots and airplanes, disseminate news about the weather, study the subject in all its details, and take all necessary measures for the development of the art. The Senate has already passed the bill and the Administration favors it. One reason why early action is necessary is that only early action can forestall the mass of contradictory legislation that may be passed by the several states. The difficulties that result from the regulation of the railroads by forty-eight states and one Federal government is a familiar story, and it is hoped that the same perplexing situation will not arise in the development of aerial highways. One interesting point still to be settled, indeed, is the ownership of the air. Americans have usually proceeded on the principle that the fee possessors of the soil controlled what lay beneath and what above—that they owned everything "from hell to heaven." The construction of skyscrapers has proceeded on that basis. The point can be argued, yet the lawyers do not think that it is settled, and the issue has never had quite the practical importance that the development of aircraft has given it.

Nakedness As a Cure for Tuberculosis

THE old state of Connecticut is maintaining its high reputation for the open-air treatment of tuberculosis. This was the first state to establish special sanitoria for tuberculous children—a reform which Connecticut has had the satisfaction of seeing become widespread. Its methods likewise give Connecticut a praiseworthy eminence in the handling of this disease. Scientists long since recognized that the greatest curative agency is sunlight; that nothing quite so quickly destroys the tubercle

bacilli, and so restores the patient to health, as those sun rays which exist in almost greater profusion than any other substance. The Tuberculosis Commission of Connecticut has applied this cure to an extent that has at times almost alarmed its patrons. Its particularly effective results have been obtained by the constant exposure of almost all parts of the body to sunlight. Nakedness is Connecticut's method of conquering the disease.

A few months ago Connecticut held an exposition, for the purpose of exhibiting to public view the work of the state's institutions. A few tuberculous children, representing the Seaside and Meriden Sanitoria, were the features that caused the greatest astonishment. These children entered a room in the State Capitol and promptly divested themselves of their clothing. Dressed only in shoes and stockings and trunks they paraded through the Capitol and out of doors and across Bushnell Park to the Armory. To understand the full meaning of this performance it is necessary to note that it was a bitter cold New England day; that the thermometer stood at zero; that there was a foot of icy snow on the ground; and that the rest of the population was dressed in its warmest furs and two suits of underwear. The only people who really enjoyed this spectacle of naked children in zero weather were the children themselves; for them the experience was nothing new; it represented the normal existence they had been leading for a considerable time. At their Seaside Sanitarium at Niantic they skate, go sledding, play in the snow and engage in all the favorite winter sports in this same condition of primitive nudity. For children suffering from tuberculosis of the lungs this existence would perhaps be too severe; but for the bone and glandular cases—and these are the only kind who receive this radical treatment in Connecticut—nothing apparently gives such excellent results as cold and sunlight.

The following picture, taken from the latest report, does not suggest a miserable community:

Forty children whose moans of pain and pallid twisted bodies were causing indescribable anguish a few months ago to their mothers and fathers, are this noon cavorting gleefully on the stretch of soft white sand west of McCook's point at Crescent Beach, Niantic. They wear shoes, and jumpers or bloomers. A few wear plaster casts on limbs or trunk. Their skin is brown, a mahogany brown. Their voices are the eager but melodious voices of healthy and happy children. They tease one another. They appeal for decisions of their controversies to the two gentle nurses who render judgments, impartially and seriously.

One little husky whose swollen knee has but recently lost its pain and stiffness, and whose beautiful black hair, brown eyes and oval face tell of Albano or Sorrento, has just called his white-haired Scandinavian chum to see a strange fish struggling in the surf, when, from various parts of the beach, come cries of:

"Here's the drum! Here comes the drum!"

All eyes are turned in the direction of the sanatorium building. Already half way to the beach is a lad wearing a plaster cast about his neck, and another on his right knee. He is proudly carrying a shining new drum, and sticks. With one accord the children on the beach clamber over the sea wall, and, directed by the nurse, form in procession, two abreast. The drummer boy solemnly takes his place at the head of the line.

At a signal from the nurse there is a preliminary soft rattle on the drum, and then with a regular and loud "rat-tat-tat, rat-tat-tat, rat-tat tat-tat tat-tat, tat," the march up the green slop to the dining room, begins.

There never was such another marching company. Many little legs keep perfect time with the

TUBERCULOSIS VICTIMS IN CONNECTICUT

These practically naked children are romping in real snow. It represents the open air treatment for glandular tuberculosis, as applied with great success by the Connecticut Tuberculosis Commission

THE SUNLIGHT TREATMENT FOR TUBERCULOSIS
As it is practised in the treatment of bone and glandular cases at the Seaside and Meriden Sanitoria in Connecticut

rat-tat-rattle of the drum but there are some ankles and some knees and some hips from which the sunlight has not yet dissolved the paralyzing tuberculous cement; and others, that are still kept stiff in splints or casts, and they of necessity move up the hill with individual halting rhythms in spite of the smiling efforts of their owners to heed the insistent punctuating beat of the drum. The drummer himself, because of the cast of unrelenting plaster that supports his chin, is unable to look down at his drum, or to move his head to either side. He gives the impression of looking for orders from the sky. And these orders he passes on to his gallant brown company with the joyous, but imperative rat-tat-rattle of his drum.

When the procession has gone half way across the greensward there is heard a childish cheer from the upper veranda of The Seaside. Here on a score of beds lie patients not yet strong enough to play on the beach, but their tiny hands are raised and their tiny caps are waved, and their shrill voices shout greetings to the oncoming brownies and the drum.

On the near-by roads speeding automobiles come to a sudden halt. Most of the occupants alight and look with awe at the marching company, and at the drummer and his drum. Men reverently doff their hats and women softly weep, but the laughing little marchers as they mount the final roll of the lawn give heed only to the rat-rat-rattle of the drum, and its promise of health and dinner. At the wide-flung entrance door the martial drummer stands, and drums, and drums, and drums, till the last of his brown company has passed him, and crossed the threshold, and hastened to the rooms where hot and fragrant food awaits them.

The aching silence that follows the disappearance of the drummer and his drum, is broken by a reporter who passes from one group to another of the listening automobilists and excitedly demands answers to this question:

"What did that drum say to you?"

When Connecticut began its famous tuberculosis work, in 1890, the deaths from this disease were 2,060 per million people; the deaths for 1922 were 950 per million. This fact sufficiently reveals the sanity and effectiveness of its methods of treatment—sunlight and other.

What Is "A Small Salary"?

ONE of the most appealing passages in the message of Governor Smith, of New York State, is made in behalf of the "small salaried man." This person, he says, is "unable to pass his tax burden to any one else and must meet it directly." The Governor therefore proposes that the state exempt the "small salaried" man from the state income tax, so that he "may not be deprived of a full opportunity to use all his earnings for the education and promotion of health and safety of his family."

What, under present industrial conditions, is a "small salaried man" in New York State? Governor Smith answers this question with commendable definiteness. A "small salaried man" is one who receives less than $5,000 a year; the legislature is requested to exempt all unfortunates of that class from the income tax, so that they may devote their small earnings to the proper upbringing of their families. Probably Governor Smith is right. At present buttonhole makers and unskilled tailors on the East Side of New York City are earning $60 and $75 a week; carpenters and brick masons are "drawing down" $10 and $15 a day; coal is $18 and $20 a ton; house rentals have reached several times the pre-war level. It is there-

fore doubtless true that a man with $5,000 a year is not an especially prosperous worker in the ranks. Yet no more remarkable illustration could be given of the changed economic order that this country has inherited from the war. In 1910 or 1913 an income of $5,000 a year would not have been regarded as so pitiful as to call for legislative relief, for such an income was comparatively rare even in New York State. Probably the Western farmers who find themselves unable to sell their crops would not regard it as distressingly low even now. The fact that the Governor of New York takes this income as a fair measure of poverty shows that the process of deflation is not complete on the Atlantic Seaboard.

WHAT IS A "SMALL SALARY"?

The legislature of New York is asked to relieve the "small salaried" man to the extent of exempting incomes of less than $5,000 from the income tax. Evidently in New York a person who earns $5,000 or less is a "small salaried man"

American "Demonstration Work" in France

SEVERAL years ago an ingenious agricultural philosopher, Dr. Seaman A. Knapp, introduced a new conception into agricultural education. At that time, as now, the United States was well supplied with agricultural colleges, which annually instructed a large mass of students in the mysteries of their art. Dr. Knapp, however, believed that scientific agriculture could be taught more directly and more effectively. The best way to show the farmers how to farm was to do the thing concretely, to teach them in what is always the most persuasive way, by example. Dr. Knapp therefore instituted the system of sending "agents" into farming districts; by cultivating a piece of soil in full view of the farming population, these agents gave them an illustration of the results that could be obtained if the lessons of the laboratory were applied to the growing of crops. This "Demonstration Work" is now an important enterprise of the Department of Agriculture, and has revolutionized American farming, especially in the Southern States. Dr. Knapp carried the same principle into the domestic art of canning fruits and vegetables. Thousands of "county agents" of the Department are now engaged teaching girls and housewives the most scientific way of preserving these essential foodstuffs; "canning clubs" are an indispensable feature of life in most agricultural sections; and here again the results, in adding to the wholesome food supply and in teaching the lesson of thrift and intelligence to the farming areas, have been almost incalculable.

In the summer of 1918 an American Committee investigated rural conditions in France to discover ways in which this country could be most useful in the agricultural sections. The first discovery was somewhat astonishing. This was that there was practically no canning or preserving done in the homes of France. The products prepared for commercial purposes enjoy a deservedly world-wide reputation; France also was the pioneer in the art of preserving, for it was a Frenchman, François Appert, who, in the time of the first Napoleon, originated the idea of "putting up" foods in hermetically sealed tins. This innovation has since penetrated most parts of the civilized world, but it has not materially affected the daily life of the nation in which it originated. The French housewife, thrifty and infinitely capable as she is in the preparation of food, had made practically no use of this French discovery. By failing to do so she was not making use of a food resource especially valuable in this time of scarcity. At first it seems almost an impertinence for Americans

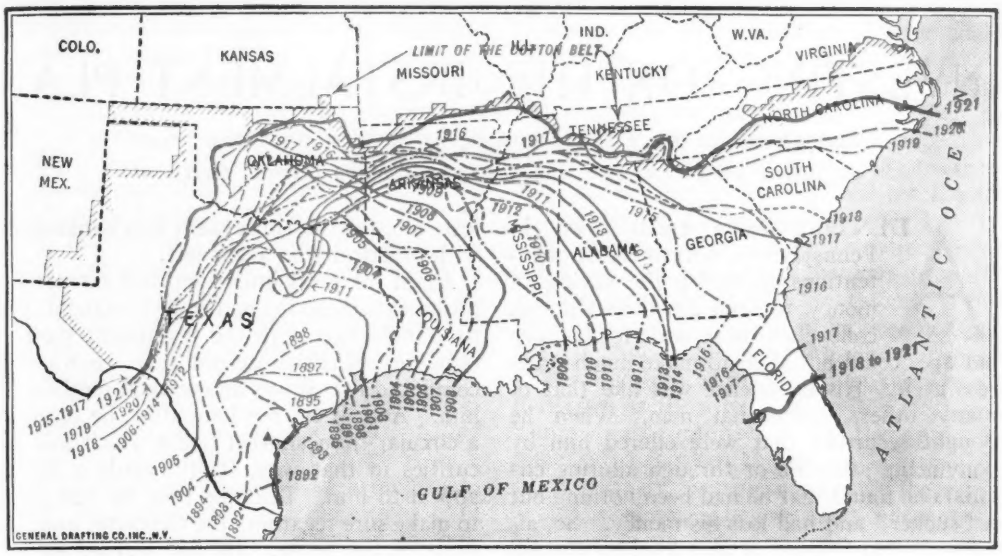
to cross the ocean and seek to introduce domestic canning into France; yet for the last three years Americans have been engaged in this very task. The labor has been a kind of extension work of the Demonstration activities of the Agricultural Department.

Several women—two of them, appropriately enough, French-speaking Americans of the old Louisiana stock—who had for years done excellent service as "county agents" in this country, have transferred their labors to the French departments, demonstrating before selected groups the latest methods of preserving vegetables and fruits. These groups comprised chiefly students at normal and agricultural schools, young women who have carried the message widely into the homes of France. All this was extremely valuable as an example; an underlying idea of the Agricultural Department, however, is that the work becomes permanent only when the people take it up themselves; similarly, only when the French people become their own missionaries will American canning become an item in their domestic routine. Therefore Madame Devouge, head of the cooking department of the National School at Grignon, has spent a considerable time in this country, studying American methods for the betterment of farm life, and two French girls are now studying the same subjects at Ames College, Iowa, and the Agricultural College at Athens, Georgia. These, and others that will be sent, will be the pioneers of American agricultural methods in France. The work is already mapped out on an extensive scale, and it is not too much to hope that, in a few years, many of the procedures used in this country to make life more happy and profitable to the farmers will be in extensive use among the hardy agriculturists of the great sister republic.

Feeding Calcium Arsenate to the Boll Weevil

THAT unwelcome guest, the Mexican boll weevil, which crossed the Rio Grande into Texas in 1892, has since spread its prolific progeny into every cotton-growing-state of the South and these industrious specialists of the beetle family, less than one fourth of an inch in length, are officially credited with the destruction of one third of the cotton crop of 1921, or approximately six million bales, worth $600,000,000. From last year's crop he took a much heavier toll. "He" is not quite accurate, for it is the female that punctures the buds and bolls of the growing cotton plant and deposits her eggs within. The real destruction is then done by the young larvæ which devour the interior. Their life cycle is completed in about twenty days; it is estimated that a single female will puncture from one hundred and fifty to two hundred bolls; so the destruction in a season due to one female that survives the winter is enormous. The South has become so concerned about it that a serious proposal has been made that no cotton be planted for a year in order to starve the weevil out.

For twenty years, since this enemy first appeared in Texas, the United States Department of Agriculture has been trying every conceivable means of checking its progress. How futile have been their efforts is shown by the steady advance the weevil has made. At last, however, it has been found that calcium arsenate is an effective poison. But now the problem is to get enough calcium arsenate for ammunition against the enemy. An appropriation of $10,000,000 by Congress to be used partly for the purchase of this chemical will not greatly expand its production. Arsenic, which is its base, is a by-product of copper and lead smelting, and until this new demand arose it was somewhat of a nuisance product. As an insecticide for other agricultural uses, and for glass manufacturing, about 8,000 tons have been consumed annually. Production in 1921 was 9,581 tons. Last year, however, 3,200 tons were used in 16,000,000 pounds of calcium arsenate on less than 2 per cent. of the cotton acreage of the South. This used up the accumulated supply of refined white arsenic in this country and a sufficient supply to permit a wider use of it in the fight against the boll weevil now depends upon heavier importations and upon the smelting of lower-grade ores by American companies. Already some of these are making plans with this in view. The advance in the price of refined arsenic to nine or ten cents a pound is said to justify this expansion. How much higher than that the cotton grower can afford to pay as his cotton advances in selling price above twenty cents a pound is a question. But the use of calcium arsenate in the South during



THE LINES OF ADVANCE MADE BY THE BOLL WEEVIL

In 1892 the Boll Weevil first crossed into Texas from Mexico, and from then until now his advance has been continuous until only a few square miles of the cotton belt remain untouched

next year, at least, is likely to be limited only by the supply.

Other factors, of course, have a bearing on the spread of this remedy for the control of the boll weevil. For instance, Dr. B. R. Coad, who has charge of this work for the United States Department of Agriculture, has found that one of the most effective means of applying the calcium arsenate powder to the cotton fields is from a low-flying aeroplane. Such a means cannot be employed on a small acreage. As a matter of fact, because of the difficulties of fighting this enemy and because of the increasing hopelessness due to its steady advance, many of the small tenant farmers of the South, white and colored, are abandoning their acreage and moving to the industrial centres for employment. Successful cotton production in the future may be on a large scale. While that change is taking place, however, and until this enemy of the cotton plant is brought under better control, the world seems likely to go short of its accustomed supply of American cotton and the public is likely to pay more for cotton goods because the appetite of this small beetle competes with our needs.

About Mr. Eugene Meyer, Jr.

A RECENTLY published article in the WORLD'S WORK erroneously described Mr. Eugene Meyer, Jr., chairman of the War Finance Corporation, as a "Jew of German origin." The fact is that Mr. Meyer was born in the United States. His mother also was born in this country. His father, sixty years a naturalized American, was born in France, of a family domiciled in that country for many generations. Mr. Meyer's great-grandfather, a Chevalier of the Legion of Honor—the first Jew to receive that distinction—was a member of the Grand Sanhedrin called by the first Napoleon to consider the Jewish questions of that time.

An Acknowledgment

DUE to an error in the February number of the WORLD'S WORK only a part of the edition gave credit to *The Geographical Review* for their courtesy in permitting the use of a photograph of the original Eskimo map which led to the discovery of the Belcher Islands.

INVESTING ON THE INSTALMENT PLAN

Every month in this part of the magazine the WORLD'S WORK *prints an article on investments and the lessons to be learned therefrom*

A DENTIST in a small town in Pennsylvania, with the best of intentions regarding the saving of money to send his boys through college and to provide for his own old age, could not seem to make much progress at it. His experience was like that of many other professional men. When he bought securities that were offered him by convincing salesmen or through alluring circulars he found that he had been nothing but a "sucker" and had lost his money. So, after a few experiences of that kind he decided that he would buy no more promotion stocks, but would stick to the issues of established companies about which he knew something.

Then there came to his attention the announcement of a house that sold such securities on the instalment plan. That suited him exactly, for it not only would give him the kind of securities he wanted but it would help him to make regular savings. He had found that he needed some fixed obligation to meet to stimulate saving. He opened an account with this house and made a substantial first payment on a list of high grade stocks.

That was in the summer of 1921. Before the end of the year his stocks began moving up in the market and this gave the dentist a definite feeling of satisfaction with his purchases. It helped him to enjoy the thrift which he had to practice in order to meet his monthly payments. He felt that at last he was on the right road to accomplish the things he desired.

But before he had made his final payment and secured possession of his stocks he received word that the house had failed and that a receiver had been appointed. At first the dentist did not know what that meant, but later he realized that he had been dealing with a bucket shop, which did not buy the stocks ordered by its clients, and because of the advancing market could not buy them later at lower prices when the time for delivery approached. In other words it had been gambling against his order and had lost. But he lost, too, for the house went into bankruptcy with practically no assets left.

Again his good intentions and his accomplishments in saving had come to naught, but his satisfaction with the instalment method of buying securities was not lost. He was still convinced that it was an excellent method for him. And when, not long after, he received a circular from another house which sold securities in that way, it still made a strong appeal to him. But this time he was going to make sure regarding the character and stability of the house. He had learned an important lesson in investing. This time he took the circular to the president of a local bank and asked him if he would find out something about the house. Then he told the banker something of his previous experiences.

This banker, who knew the dentist well, asked him why he had not come to him before. He said he did not know this house and was not going to bother to make inquiries about it; that if the dentist wanted to buy the stocks listed in the circular, which were good stocks, he, the banker, would order them for him, pay for them, have them delivered to the bank and the bank would hold them as collateral and let the dentist pay for them just as he would pay the house. Then there would be no question about the dentist getting the stocks when he had completed his payments. They would be there in the bank waiting for him.

Since then this dentist has acquired a good many of the best dividend paying stocks in this way and he now feels certain that his problem of saving and investing has been solved. The banker feels almost as much satisfaction in the accomplishment, and knows that he will reap a reward in larger deposits for thus helping to conserve the savings of the community.

This experience is related here because this department has received inquiries lately from several people who wish to invest regular monthly savings. An unmarried man in California wrote: "I have for investment and speculation $75 to $100 a month. Would you

please advise me what course to pursue in using these funds so long as my responsibility is confined to myself alone?" A man writing from a university club in Ohio said: "I would greatly appreciate your advice upon the best way to invest $100 per month. Systematic saving is the motive behind this desire so that an income may be built for the future." From a college in Maryland came a third one: "I am a teacher, and have from $35 to $75 to invest each month. What do you think of the monthly payment plan of — —? Can you suggest reputable firms in New York and Baltimore who have similar plans for saving and investing?"

To the first two of these inquirers a savings account was suggested until a sufficient fund was collected to make a first payment on a good $1,000 bond and then an arrangement with a local bank to handle the purchases of such a bond, hold it as collateral for the balance due and accept regular monthly payments on the balance. The United Kingdom of Great Britain & Ireland 5½s due 1937 was suggested to one of them as a good kind of a bond to start with.

In answer to the third inquirer it was said that the monthly payment plan to which he referred was a good one, but that the house itself did not enjoy the best reputation; in fact, there was good reason to believe it operated at times as a bucket shop. In reply to his request for the names of reputable firms in New York and Baltimore who have similar plans for saving and investing, the names of two New York Stock Exchange houses and of a trust company in Baltimore were given him. Through these Stock Exchange houses he could buy stocks in this way; through the trust company he could buy bonds.

Outside of these two Stock Exchange houses this Baltimore trust company, and those of the investment banking houses that sell their own underwritings in this way, there are few brokers or bankers doing a partial payment business that the Investment Editor could recommend. That indicates the danger in buying securities in this way, the danger that the Pennsylvania dentist ran into when he first started. It explains why the suggestion is made to inquirers that they go to their local banker first to see if he will not handle such purchases for them. Since the Liberty Loan campaigns there has been a more general willingness on the part of bankers to assist and advise partial payment investors. If the investor deals through them he does not run the risk of doing business with a bucket shop.

There are not as many bucket shops now, it is true, as there were before the fatal epidemic of last winter set in, but there are still some left and when the present advance in stock prices reaches its culmination there will likely be more. They prosper when stock prices are going down and some of those who dropped out because the market went so steadily against them can be expected to get back into the business under different names. And the partial payment method of selling affords one of the best means of operating as a bucket shop, for it gives them several months in which to win their bets against their clients.

Because stocks have now advanced in price since the summer of 1921 and may be near the top of the present upward movement, bonds were mentioned to the two inquirers above who asked for suggestions as to what they should buy. The prospects for bonds continuing to go up seems better than for stocks. Upward movements in stocks in the past have averaged about two years in duration and this movement is nearing that length. It would therefore seem better not to start investing in stocks on the instalment plan, with prices at present levels, unless one bought the best stocks solely for income and felt sure he would not be disturbed to see them sell lower in price.

Adventures of an International Reporter

I. HOW I EXPOSED DR. COOK'S POLAR FRAUD

The Strange Series of Episodes that Led to the Conviction, on the Day He Returned from the North, That He was Playing a Gigantic Game of Bluff. A "Scoop" That Echoed 'Round the World

By PHILIP GIBBS

Sir Philip Gibbs is probably the most widely known living reporter. His dispatches during the war earned him an international reputation, but before that he was a leading journalist with much brilliant work to his credit. In this series of articles he tells his adventures in getting the facts for his most famous newspaper stories.—THE EDITORS.

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IN SPITE of my long and fairly successful career as a journalist, I have rarely achieved what is known as a "scoop," that is to say, an exclusive story of sensational interest. On the whole I don't much believe in the editor or reporter who sets his soul on "scoops," because they create an unhealthy rivalry for sensation at any price—even that of truth—and the "faker" generally triumphs over the truth-teller until both he and the editor who encouraged him come a cropper by being found out.

That is not to say that a man should not follow an advantage to the utmost and his luck where it leads him. It is nearly always luck that is one of the essential elements in journalistic success, and sometimes, as in a game of cards, it deals a surprisingly fine hand. The skill is in making the best use of this chance and keeping one's nerve in a game of high stakes.

The only important "scoop" that I can claim, as far as I remember, was my discovery of Dr. Cook after his pretended discovery of the North Pole. That was due to a lucky sequence of events which led me by the hand from first to last. The story is amusing for that reason, and this is the first time I have written the narrative of my strange experiences in that affair.

My first stroke of luck, strange as it may seem, was my starting twenty-four hours later than forty other correspondents in search of the explorer at Copenhagen. If I had started at the same time, I should have done what they did, and perhaps taken the same line as they did. As it was, I had to play a lone hand and form my own judgment.

I had arrived at the *Daily Chronicle* office from some country place when E. A. Perris, the news editor, now the managing editor, said in a casual way:

"There's a fellow named Dr. Cook who has discovered the North Pole. He may arrive at Copenhagen to-morrow. Lots of other men have the start of you, but see if you can get some kind of a story."

I uttered the usual groan, obtained a bag of gold from the cashier, and set out for Copenhagen by way of the North Sea. On a long and tiresome journey I repeated the name "Dr. Cook," lest I should forget it, wondered if I knew anything about Arctic exploration, and decided I didn't, and accepted the probability that I should be too late to find the great explorer, and shouldn't know what to ask him if I found him.

I arrived in Copenhagen dirty, tired, and headachy in the evening. I wanted above all things a cup of strong coffee, and with the German language, communicated my desire to a taxi-driver. He took me to a rather low-

looking café filled with men and women and tobacco smoke. That was my second stroke of luck, for if I had not gone to that particular café I should never have met Dr. Cook in the way that happened.

Over my cup of coffee I looked at the Danish paper, and could read only two words, "Dr. Cook." A young waiter served me, and when I found that he spoke English, I asked him if Dr. Cook, the explorer, had arrived in Copenhagen.

"No," said the waiter. "He ought to have been here at mid-day. But there's a fog in the Cattegat, and his boat will not come in until to-morrow morning. All Denmark is waiting for him."

So he had not arrived! Well, I might be in time, after all. I looked round for any journalist I might know, but did not see a familiar face.

Presently, as I sat smoking a cigarette, I perceived a suddenly awakened interest among the people in the café. It was due to the arrival of a very pretty lady in a white fur toque, with a white fox-skin round her neck, accompanied by another young lady, and a tall Danish fellow with tousled hair. They took their seats at the far end of the café.

The young waiter came up to me and whispered with some excitement:

"Did you see that beautiful lady? That is Mrs. Rasmussen!"

The name meant nothing to me, and when I told him so, he was shocked.

"She's the wife of Knud Rasmussen, the famous explorer. It was he who provided Dr. Cook with his dogs before he set out for the North Pole. They are great friends."

I was aware that luck was befriending me. From that lady, if I had the pluck to speak to her, I could at least find out something about the mysterious Dr. Cook, and perhaps get a good story about him, whether I could meet him or not.

I struggled with my timidity, and then went across the café and made my bow to the pretty lady, explaining that I was a newspaper man from London, who had come all the way to interview Dr. Cook who was, I understood, a friend of her distinguished husband. Could she tell me how to find him?

Mrs. Rasmussen who, as I discovered later, was half an Eskimo but highly educated and extremely handsome, spoke a little French, a little German, and a very little English. In a mixture of these three tongues we understood each other, helped out by the young

DR. COOK BEING RECEIVED BY THE CROWN PRINCE OF DENMARK

When Dr. Cook arrived at Copenhagen his reception was very enthusiastic. The Danish Crown Prince, the American Minister, and may other notables, as well as newspaper correspondents from the foremost European papers, were on hand, but an interesting sequence of events had made it possible for Gibbs to meet Cook's ship before it landed, and while talking with him before Copenhagen was reached Gibbs became convinced that Cook's story was not true

Dane who was Peter Freuken, a well-known traveller in the Arctic regions, and a very good linguist.

Mrs. Rasmussen was friendly and amused. She told me it was true her husband was a great friend of Dr. Cook, and that he was the last man who had seen him before he went toward the North Pole. For that reason she wanted to be one of the first to greet him. A launch, or tug, belonging to the director of the Danish-Greenland Company, had made ready to go down the Cattegat to meet the *Hans Egede* with Dr. Cook on board, and she had hoped to make that journey. But the fog had spoiled everything, and the launch would leave in the morning instead at a very early hour. It was very disappointing!

"Surely," I said, "if you really want to go, it would be excellent to travel to Elsinore tonight, put up at a hotel, and get on board the launch at dawn. If you would allow me to accompany you——"

Mrs. Rasmussen laughed at my adventurous plan.

According to her, the last train had gone to Elsinore.

"Let us have a taxi and drive there!"

She told me that no motor car was allowed to drive at night beyond a certain distance from Copenhagen. It would mean a fine, or imprisonment, for the driver without special license.

It seemed incredible.

I summoned my friendly young waiter, and asked him to bring in a taxi-driver. In less than a minute a burly fellow stood before me, cap in hand. Through the waiter I asked him how much he wanted to drive a party that night to Elsinore. He shook his head, and, according to the waiter, replied that he could not risk the journey, as he might be heavily fined.

"How much, including the fine?" I asked.

If he had demanded fifty pounds, I should have paid it—with *Daily Chronicle* money.

To my amazement, he asked the modest sum of five pounds, including the fine.

I turned to Mrs. Rasmussen, Peter Freuken, and the other lady, and invited them all to make the journey in "my" motor-car.

They hesitated, laughed, whispered to each other, and were, as I could see, tempted by the lure of the adventure.

"But," said Mrs. Rasmussen, "when we get there, supposing you were not allowed on the launch by the Director of the Danish Greenland Company? He is our friend. But you are, after all, a stranger!"

"I should have had an amusing drive," I said. "It would be worth while. Perhaps you would tell me what Dr. Cook says, when you return."

They laughed again, hesitated quite a time, then accepted the invitation. It was arranged that we should start at ten o'clock, when few people would be abroad outside the city, where we should have to travel with lights out to avoid the police. There still remained an hour or so. We had dinner, talked of Dr. Cook, and at ten o'clock started out in the taxi, and I thought how incredible it was that I should be sitting there, opposite a beautiful lady with a white fox round her throat, with a laughing girl by her side, and a young Danish explorer next to the driver, riding through Denmark with lights out, to meet a man who had discovered the North Pole, and whose name I had never heard two days before. These things only happen in journalism and romance.

We had not gone very far when, driving through a village, we knocked over a man on a bicycle. People came running up through the darkness. Peter Freuken leapt down from his seat to pick up the man, who seemed to be uninjured, and there was a great chatter in the Danish tongue, while I kept on shouting to Freuken "How much to pay?" After a while he resumed his seat and said, "Nodings to pay!" So we went on again, and after a long, cold drive without further incident, reached Elsinore, where Hamlet saw his father's ghost.

At the hotel there we had something hot to drink, and then Mrs. Rasmussen caught sight of a dapper little man who was the Director of the Danish Greenland Company and the owner of the launch which was to meet Dr. Cook.

I was left in the background while my three companions entered into conversation with him. From the expression on their faces, I soon saw that they were disappointed, and I resigned myself to the thought that I had the poorest chance of meeting the explorer's ship at sea.

Presently Mrs. Rasmussen came back.

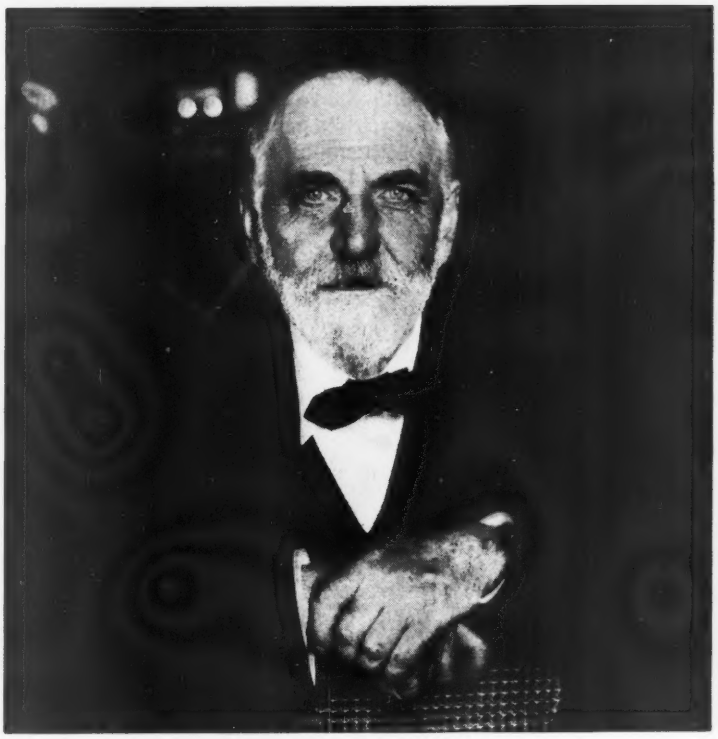
"He won't take us," she said.

"Hard luck!"

"But," she added, "he will take you!"

That sounded ridiculous, but it was true. The pompous little man, it seemed, had had applications from half the ladies of Copenhagen, including his own wife, perhaps, to take them on his tug to meet the hero of the North Pole. He had refused them all, in order to favor none at the expense of others. It was impossible for him to take Mrs. Rasmussen and her friends. He very much regretted that. But when they told him that I was an English journalist, he said there would be a place for me with two or three Danish correspondents.

Amazing chance! But hard on the little party I had brought to Elsinore! They were very generous about the matter, and wished me good luck when I embarked on the small tug which was to steam out to a light-ship in the Cattegat and at dawn go out to meet the *Hans Egede*, as Cook's ship was called. Like a fool, I left my overcoat behind and nearly perished of cold, until an hour later I had climbed up an iron ladder to the light ship in a turbulent sea and descended into the skipper's cabin where there was a joyous "fugg" and some hot cocoa spiced with a touch of paraffin.



W. T. STEAD

The great English journalist who disagreed with Philip Gibbs about Dr. Cook. In the pages of his publications he staunchly defended Dr. Cook for a time, but later admitted his mistake

At dawn we saw, far away up the Cattegat, a little ship all gay with bunting. It was the *Hans Egede*. We steamed toward it, lay alongside, and climbed to its top-deck up a rope ladder. There I saw a sturdy, handsome Anglo-Saxon-looking man, in furs, surrounded by a group of hairy and furry men, Europeans and Eskimos, and some Arctic dogs. There was no journalistic rival of mine aboard, except the young Danes with us.

I went up to the central figure, whom I guessed to be Dr. Cook, introduced myself as an English press man, shook hands with him, and congratulated him on his heroic achievement.

He took my arm in a friendly way, and said, "Come and have some breakfast, young man."

I sat next to him in the dining saloon of the *Hans Egede* which was crowded with a strange-looking company of men and women, mostly in furs and oilskins, with their faces burnt by sunlight on snow. The women were missionaries and the wives of missionaries, and their men folk wore unkempt beards.

I studied the appearance of Dr. Cook. He was not bearded, but had a well-shaven chin. He had a powerful face, with a rather heavy nose and wonderfully blue eyes. There was something queer about his eyes, I thought. They avoided a direct gaze. He seemed excited, laughed a good deal, talked volubly, and was restless with his hands, strong seaman's hands. But I liked the look of him. He seemed to me typical of Anglo-Saxon explorers, hard, simple, true.

In response to my request for his "story" he evaded a direct reply, until, later in the morning, the Danes and I pressed him to give us an hour in his cabin.

It was in the saloon, however, that he delivered himself, unwillingly, I thought, into our hands. As the two or three young Danes knew but little English, the interview became mainly a dialogue between Dr. Cook and myself. I had no suspicion of him, no faint shadow of a thought that all was not straightforward. Being vastly ignorant of Arctic exploration, I asked a number of simple questions to extract his narrative; and to save myself trouble and get good "copy", I asked very soon whether he would allow me to see his diary.

To my surprise, he replied with a strange defensive look that he had no diary. His papers had been put on a yacht belonging to a man named Whitney, who would take them to New York.

"When will he get there?" I asked.

"Next year," said Dr. Cook.

"But surely," I said, still without suspicion, "you have brought your journal with you? The essential papers?"

"I have no papers," he said, and his mouth hardened.

"Perhaps I could see your astronomical observations?" I said, and was rather pleased with that suggestion.

FREDERICK ALBERT COOK

In 1891-92 Dr. Cook was surgeon of the Peary Arctic Expedition. From 1897 to 1899 he was with the Belgian Antarctic Expedition in the same capacity. Upon his return in 1909 after a trip to the Arctic he announced that he had discovered the Pole, and was received with great enthusiasm. Sir Philip Gibbs, who was the first newspaper man to interview him, became convinced that his story was not true, and so reported to the London *Daily Chronicle*. Gibbs, however, was alone in his accusation and some time elapsed before he was able to convince any of the others who were on the ground that he was right. Later developments proved that Cook had spent the winter of 1907-08 at Jones Sound, near Baffin Bay

"Haven't I told you that I have brought no papers?" he said.

He spoke with a sudden violence of anger which startled me. Then he said something which made suspicion leap into my brain.

"You believed Nansen," he said, "and Amundsen, and Sverdrup. They had only their story to tell. Why don't you believe me?"

I had believed him. But at that strange, excited protest and some uneasy, almost guilty look about the man, I thought, "Hullo! What's wrong? This man protests too much."

From that moment I had grave doubts of him, I pressed him several times about his papers. Surely he was not coming to Europe, to claim the greatest prize of exploration, without a scrap of his notes, or any of his observations? He became more and more angry with me, until, for the sake of getting some narrative from him, I abandoned that interrogation, and asked him for his personal adventures, the manner of his journey, the weights of his sledges, the number of his dogs, and so on. As I scribbled down his answers, the story appeared to me more and more fantastic. And he contradicted himself several times, and hesitated over many of his answers, like a man building up a delicate case of self defence. By intuition, rather than evidence, by some

quick instinct of facial expression, by some sensibility to mental and moral dishonesty, I was convinced, absolutely, at the end of an hour, that this man had not been to the North Pole, but was attempting to bluff the world. I need not deal here with the points in his narrative, and the gaps he left, which served to confirm my belief.

In sight of Copenhagen the *Hans Egede* was received by marvelous demonstrations of enthusiasm. The water was crowded with craft of every size and type, from steam yachts to rowing boats, tugs to pinnaces, with flags aflutter. Cheers came in gusts, unceasingly. Sirens shrieked a wailing homage, whistles blew. Bands on pleasure steamers played "See the Conquering Hero Comes."

Dr. Cook, the hero, was hiding in his cabin. He had to be almost dragged out by a tall and splendid Dane named Norman Hansen, poet and explorer, who afterward constituted himself Dr. Cook's champion and declared himself my enemy, because of my accusations.

ROBERT E. PEARY

Whose dramatic announcement of his discovery of the North Pole came while Dr. Cook was being feted in Copenhagen by the Danes and was being written up by Sir Philip Gibbs as a fraud

Dr. Cook came out of his cabin with a livid look, almost green. I never saw guilt and fear more clearly written on any human face. He could hardly pull himself together when the Crown Prince of Denmark boarded his ship and offered the homage of Denmark to his glorious achievement.

But that was the only time in which I saw Cook lose his nerve.

Landing on the quayside, I had to fight my way through an immense surging crowd which almost killed the object of their adoration by the terrific pressure of their mass, in which each individual struggled to get near him. I heard afterward that W. T. Stead, the famous old journalist of the *Review of Reviews*, which afterward I edited, flung his arms round Dr. Cook, and called upon fellow journalists to form his body guard, lest he should be crushed to death.

On the edge of the crowd I met the first English journalist I had seen. It was Alphonse Courlander, a very brilliant and amusing fellow, with whom I had a close friendship. When he heard that I had been on Cook's ship and had interviewed him for a couple of hours, he had a wistful look which I knew was a plea for me to impart my story. But this was one of the few times when I played a lone hand, and I ran from him, and jumped on a taxi in order to avoid the call of comradeship. I knew that I had the story of the world.

In a small hotel, distant from the centre of the city, I wrote it to the extent of seven columns, and the whole of it amounted to a case of libel, making a definite challenge to Cook's claim and ridiculing the narrative which I set forth as he had told it to me. When I had handed it into the telegraph office I knew that I had burnt my boats, and that my whole journalistic career would be made or marred by this message.

During the time I had been writing, Dr. Cook had been interviewed by forty journal-

ists in one assembly. W. T. Stead, as doyen of the Press, asked the questions, and at the end of the session spoke on behalf of the whole body of journalists in paying his tribute of admiration and homage to the discoverer of the North Pole. Spell-bound by Stead's enthusiasm, and not having had my advantage of that experience on the *Hans Egede*, there was not a man among that forty who suggested a single word of doubt about the achievement claimed by Cook. By a supreme chance of luck, I was alone in my attack.

I will not disguise my sense of anxiety. I had a deep conviction that my judgment was right, but whether I should be able to maintain my position by direct evidence and proof, was not so certain in my mind. I knew next day that my despatch had been published by my paper, for great extracts from it were cabled back to the Danish press and they caused an immense sensation in Copenhagen, and as the days passed in an astounding fortnight, when I continued my attack by further and damning accusations against Cook, I was the subject of hostile demonstrations in the restaurants and cafés, and the Danish newspaper *Politiken* published a murderous-looking portrait of me and described me as "the liar Gibbs"—a designation which afterward they withdrew with handsome apologies.

The details of the coil of evidence I wove about the feet of Cook need not be told in full. He claimed that he had told his full story to Sverdrup, a famous explorer in Copenhagen, and that Sverdrup pledged his own honor in proof of his achievement.

Afterward I interviewed Sverdrup and obtained a statement from him that Cook had given no proof whatever of his claim.

He professed to have handed his written narrative and astronomical observations to the University of Copenhagen, and it was claimed on his behalf by the Danish Press that these papers had been examined by astronomical and geographical experts who were absolutely satisfied that Cook had reached the North Pole.

From the head of the University I obtained a statement that Cook had submitted no such papers and had advanced no scientific proof.

Using his own narrative to me, which I had scribbled down as he talked, I enlisted the help of Peter Freuken and other Arctic travellers, to analyse his statements about his distances, his sledge-weights, the amount of food drawn by his dogs, and his time-table. They proved to be absurd, and when he contradicted himself to other interviewers, I was able, with further expert advice, to contradict his contradictions. It was a great game, which I thoroughly enjoyed, though I worked day and night, with only snatches of rest for food and sleep.

But I had some nasty moments..

One was when a statement was published in every newspaper of the world that the Rector of the Copenhagen University had flatly denied my interview with him and reiterated his satisfaction with the proofs submitted by Dr. Cook.

The Daily Chronicle telegraphed this denial to me and said, "Please explain."

I remember receiving that telegram shortly after reading the same denial in the Danish newspapers, brought to me by Mr. Oscar Hansen, the Danish correspondent of my own paper, who was immensely helpful to me. I was thunderstruck and dismayed, for if the Rector of the University denied what he had told me, and maintained a belief in the bona fides of Cook I was utterly undone.

At that moment W. T. Stead approached me and put his hand on my shoulder. He, too—still the ardent champion of Cook—had read that denial.

"Young man," he cried, in his sonorous voice, "you have not only ruined yourself, which does not matter very much, but you have also ruined the *Daily Chronicle*, for which I have had a great esteem."

"Mr. Stead," I said, "I am a young and obscure man, compared with you, and I appeal to your chivalry. Will you come with me to the Rector of Copenhagen University and act as my witness to the questions I shall put to him, and to the answers he gives?"

"By all means," he said, "and to make things quite beyond doubt, we will take two other witnesses—the correspondent who issued the statement about the denial, and another of established character."

The two other witnesses were a French Count, acting as the correspondent of a great French newspaper—the Comte d'Hesdin—and the representative of a news agency who had issued the University statement, and believed in its truth.

It was a strange and exciting interview with that Rector. For a long time he refused to open his lips to say a single word one way

or the other about the Cook case. He relented slowly when W. T. Stead made an eloquent plea on my behalf, and said that my honor was at stake on his word.

The correspondent who had published the denial of my interview tried to intervene, speaking in rapid German which I could hardly follow, endeavouring to persuade the Rector to uphold the statement issued with regard to the University. But the Comte d'Hesdin, acting as my second, as it were, sternly bade him speak in English or French which all could understand, and to give me the right of putting my questions. This was upheld by Stead.

I put my questions exactly word for word as I had done in the first interview.

Had Dr. Cook submitted any journal of his travels to the University?

Had he submitted any astronomical observations?

Had he presented any proof at all of his claim to have reached the Pole?

The Rector hesitated long before answering each question in the negative. The man was profoundly disturbed. Undoubtedly, as I knew later, the University, with the King as its President, had deeply involved itself by offering an honorary degree to Cook. As its chief representative, this man was in a difficult and dangerous position, if he turned down Cook's claim. It was at least five minutes before he answered the last question. Then, as an honest man, he answered, as he had done before when I saw him alone. No!

I breathed a deep sigh or relief. If he had been a dishonest man, my reputation and career would have been utterly ruined.

I asked him to sign the questions and answers as I had written them down, but for a long time he refused to put his signature. Then he signed, but as he handed me the paper, he said: "Of course that must not be published in the newspapers."

I protested that in that case it was useless, and both Stead and the Comte d'Hesdin argued on my behalf. I had the paper in my breast pocket, and when the Rector gave a timorous consent to its publication, I left the room with deep words of thanks, and fairly ran out of the gate of the University lest he should change his mind, or the paper should be taken from me. It was published in the *Daily Chronicle*, and in hundreds of other papers.

A second blow befell me.

I had resumed acquaintanceship with Peter Freuken and Mrs. Rasmussen, and at lunch one day she showed me a long letter which she had received from her husband, the explorer who, as I have told, had been Cook's best friend, and had provided his dogs and Eskimos.

Mrs. Rasmussen, smiling, said: "You, of all men, would like to read that letter."

"Alas that I do not know Danish!" I answered.

She marked one paragraph with a pencil, and said, "Perhaps I will let you copy out those words."

It was Peter Freuken who copied out the words in Danish, and Oscar Hansen who translated them into English on a bit of paper which I tore out of my note book.

They were a repudiation by Knud Rasmussen of his faith in Cook, and a direct assertion that he was a knave and a liar.

These words were, of course, vitally interesting to me, and, indeed, to the world, for the fame and honor of Rasmussen were high, and his name had been used as the best guarantee of Cook's claim. With Mrs. Rasmussen's permission, I telegraphed her husband's words in my message that day. They were immediately reproduced in all the Danish papers, and made a new sensation.

But my private sensation was far more emotional when, in crossing a square the following evening, a Danish journalist showed me a paper and said, "Have you seen this?"

It was a formal denial by Mrs. Rasmussen that she had ever shown me a letter from her husband, or that he had ever written the words I had published.

That was a severe shock to me. I could not understand it, or indeed believe it. That very day Peter Freuken and Mrs. Rasmussen had been my guests at lunch, and as friendly as possible. Probably some malicious journalist had invented the letter. . . . .

It was late at night, and I could not find either Peter Freuken or Mrs. Rasmussen, nor did I ever see the lady again, because, on account of certain high influences, she disappeared from Copenhagen.

I remembered the bit of paper on which the words had been written down in Danish by Peter Freuken and translated into English by Oscar Hansen. That document was very precious, and my only proof, but I couldn't

find it in my pockets or my room. My room at the hotel was a wreck of papers, but that one scrap evaded all search. At last, down on my hands and knees, I found it screwed up under the bed, and gave a cry of triumph.

My old friend and true comrade, Oscar Hansen, made an affidavit that he had translated Freuken's words, the editor of a news agency swore to Freuken's handwriting, and I issued an invitation to Mrs. Rasmussen to submit her husband's letter to a committee of six, half appointed by herself and half by me. If they denied that the letter contained the words I had published, I would pay a certain heavy sum, which I named, to Danish charities. That invitation was not accepted and my words were believed.

A banquet was given to Dr. Cook, and I attended in the dress clothes of my young friend the waiter. It was an historic evening, for, in the middle of that dinner came the famous message from Peary in which he announced his own arrival at the Pole and repudiated Cook's claim.

I stood close to Dr. Cook when that message was handed to him, and I am bound to pay a tribute to his cool nerve. He read the message on the bit of flimsy, handed it back, and said: "If Peary says he reached the Pole, I believe him!"

His manner at all times, after that temporary break-down on the *Hans Egede* was convincing. It was marvellous on the day when the doctor's degree—the highest honor of the University—was conferred upon him, and before all the learned men there he ascended the pulpit of the University chapel and in a solemn oration stretched out his arms and said: "I show you my hands—they are clean!"

At that moment I was tempted to believe that Cook believed he had been to the North Pole. Sometimes, remembering the manner of the man, I am tempted to think so still—though now there is no doubt that he never went anywhere near his goal.

I used to meet him on neutral ground at the American Minister's house in Copenhagen, where I handed round Miss Egan's tea cakes. Dr. Cook would never accept any cake from me! Maurice Egan, the Minister, was immensely courteous and kind, and Miss Egan confided to me that if I proved to be right about Dr. Cook, in whom she believed, she would lose her faith in human nature. Since then, though I was proved right, she has regained her faith in human nature, as I know from her happy marriage in the United States.

One other slight shock disturbed my mental poise in this fortnight of sensation. It was when I read in the *Politiken* a challenge to a duel, publicly addressed to me by Norman Hansen, the poet and explorer. He was a tall man, six foot three or so in his socks, and very powerful. I am five foot six or so in my boots. If we met, I should die. I did not answer that challenge! But on the day when Dr. Cook left Copenhagen, with a wreath of roses round his bowler hat, and when I had done my job with him, the crowd which had gone down to the quayside to see the last of him, parted, and I found myself face to face with Norman Hansen.

Someone in the crowd said:

"When is that duel to be fought?"

Norman Hansen came toward me, and held out his hand, with a great jolly laugh.

"We will never fight with the sword," he said, "but only with the pen!"

We didn't even fight with the pen, for he lost all faith in Cook, and sometimes from northern latitudes I get kind and generous messages from him.

W. T. Stead maintained his belief in Cook until the University of Copenhagen formally rejected Cook's claim and cancelled his honorary degree, when the evidence of his own papers, which afterward arrived, and the story of his own Eskimos, left no shred of doubt in his favor.

Then I had a note from the great old journalist.

"I have lost and you have won," he wrote, and after that used generous words which I need not publish.

Truly it was a queer, exciting incident in my journalistic life, and looking back upon it, I marvel at my luck.

DEMOCRATIC PRESIDENTIAL POSSIBILITIES

Henry Ford and the Farmers. The Reasons for the Concern with which Politicians Watch His Career

By MARK SULLIVAN

THERE has been current in the less serious aspects of Washington political gossip, ever since the explosive results of last fall's election were known, one of those stories of which the literal veracity would be hard to prove—one of those stories, indeed, which probably never happened at all, but which are invented by the imaginative to epitomize a state of things—the type of story which often does, in fact, summarize a complex situation with more vividness, even with more essential accuracy, and certainly with more brevity, than any photographic narrative could. The story is to the effect that the managers of a big county fair in Iowa solicited proposals from various side-shows and other forms of entertainment, which might be relied upon to attract the attention of the multitude and thereby assure a maximum attendance. Among the proposals received by the management was one for that form of entertainment which consists in setting two railroad engines going at maximum speed in opposite directions on the same track, with results in the shape of explosive violence such as to give thrills to an audience whose permanent or temporary mood finds pleasure in this sort of event. Upon the receipt of this proposal, the managers of the fair were disposed to reject it, on the ground that it was too old—that this particular kind of show has been going the rounds of the country fairs for more than two generations, and has, therefore, whatever its merits, certainly lost that of novelty. After much discussion, however, in the absence of more alluring suggestions, the proposal was accepted, and the head-on locomotive collision occupied a duly conspicuous place on the programme.

As the event turned out, the crowd was satisfactory in size; and not only satisfactory but extraordinarily striking in the quantity and quality of the enthusiasm with which it viewed the smash-up. After this part of the entertainment was over, the proprietor of the show, having a commercial interest in acquiring expert appraisal of just what things can be depended upon to draw a crowd and satisfy its tastes, spent the closing day of the fair circulating among the visiting farmers and asking questions designed to bring out just why there had been such a degree of interest in the spectacle of several tons of iron meeting several other tons of iron going rapidly in the opposite direction. At the end of his investigations, the manager reported his conclusions in a sentence which, as quoted in the lighter moods of Washington political discussion, was to the effect that "The way the farmers of Iowa are feeling just now, any one of them would travel a hundred miles any day for the pleasure of seeing hell smashed out of 'most anything."

If this story about Iowa is a dependable reflection of the prevailing state of mind of the country generally—and in circles competent to judge, it is so accepted—then it is obvious that the political mood which finds this sort of expression, contains elements of acute apprehension for the political status quo, for the thing that is—in short, baldly and concretely—for the party and the administration in power. That something like this was the political mood of the country last November is abundantly proved by the results. The aspect of the question which interests politicians who look toward the future is whether this will continue to be the mood of the country in the Presidential year of 1924.

There are some among the Republicans who take comfort—not a very substantial comfort, but something rather in the nature of putting the best face on the disagreeable—in pointing out that it is possible for this mood to change. As they state it, the ele-

ment of hope from the Republican point of view is that one period of two years is equal in its inherent potentialities of change to another period of two years; and that just as there was a violent swing in the fortunes of the Republican party from 1920 to 1922, so may there be an equally violent contrary swing, more rich in good fortune for the party in power, between 1922 and 1924. However this may be, the present fact, admitted by the politicians and vaguely sensed even by those who are comparatively remote from politics, is that the Republican party is at this moment rather low in its fortunes; and any survey of the future course of events, both within each of the two parties and also in the relation of the two parties to each other, is likely to start from this assumption. Indeed, the more practical-minded of the Republican politicians, in their moments of candor, say that their most substantial hopes lie, not in the occurrence, either by accident or design of anything which will restore the Republican party to its 1920 strength; but rather in the possibility that the Democratic party, either by some kind of mischance inherent in the general situation, or else by lack of foresighted control of events, may fail to get the advantage of the currents which at this moment are admittedly running in its favor. The Republicans, in short, in the lack of clear affirmative strength on their own part, look with hope on anything that tends to promise trouble and dissension within the Democratic ranks.

WHAT THE POLITICIANS THINK

IT IS largely for this reason that the Republicans take an interest, not wholly unselfish, in the increasingly obvious probability that Mr. Henry Ford is going to cut a considerable and not altogether universally welcome figure in the internal affairs of the Democratic party between now and the Presidential convention of next year. The Republicans, in short, among other fragments of hope, entertain the idea that Mr. Ford may, in the phrase they use, "mess things up" so badly for the Democrats as to impair their chance of putting the Republicans out of power.

This probability of Mr. Ford's emergence in the rôle of a candidate for the Democratic nomination, which is just coming to be a matter of widespread comment, has long been anticipated by those within the Democratic leadership whose responsibility makes them sensitive to uneasiness; and by many others also whose contact with public events made them realize the inherent intimacy of relation between those forces of dissatisfaction which are the most conspicuous element, probably the determining element, in American politics just now; and, on the other hand, the impression which the public has of Henry Ford's personality.

It is an odd thing, if you reflect upon it, that a popular unrest which directs itself largely against wealth, tends, nevertheless, for its leadership, to seize upon a man who is commonly accepted as having one of the three largest incomes in the world. Why is it that precisely the same political mood which would hoot at the idea of nominating Mr. Rockefeller for the Presidency, not only takes kindly to the suggestion, but actually demands as its favorite, a man who is close to being Mr. Rockefeller's equal in income? If efficient and economic management of the production and distribution of commodities were the primary purpose sought by the present political mood, one might say it would be equally well served by Mr. Ford or by the presiding genius of the Standard Oil Company.

To look at it from still another angle, if the use a rich man makes of his money were the basis of the popular valuation of him for political purposes, Mr. Rockefeller would have a multifold advantage over Mr. Ford. For Mr. Rockefeller gives to public causes—education, the prevention of disease, and the like, fully a hundred dollars—possibly a thousand—to Mr. Ford's one. Mr. Rockefeller has given literally hundreds of millions to colleges, hospitals, and other forms of public benefit. Mr. Ford, on the other hand, has the reputation of being rather strongly self-disciplined about this form of indulgence in the privileges of great wealth. He appears to be willing to give generously enough to causes that appeal to him; but he seems to have definite and positive notions of just what he wants to support; and the countless numbers of persons who try to get him to "loosen up" do not seem able to guess the key to Mr. Ford's mental attitude about his surplus money. (A writer ought to be careful not to convey an unfair implication in the effort to emphasize a contrast. The impulsive prodigality with which Mr. Ford financed his peace-ship sug-

gests what he is capable of doing for a thing that happens to be within the field of what he thinks needs greatly to be done.)

No, the contrast in the public attitude toward Mr. Ford and Mr. Rockefeller is not affected by the relative size of their public benefactions. While our public prejudices in America are frequently badly directed, and occasionally cruel, nevertheless, probably we should feel glad that our people will not give their political affections, nor even withdraw their prejudices, in response to even the most magnificent helpful use of wealth for the public good that the world has ever seen. The explanation of this similarity of achievement between Mr. Ford and Mr. Rockefeller coupled with the contrast in the public appraisal of the two men for political purposes, lies precisely in those qualities of Mr. Ford's personality, and the public impression he has made, which now so commend him to the popular mood. The contrast lies deeper than the mere fact that Mr. Rockefeller, in the generation during which he pioneered and built up the intricate mechanism of oil-wells and pipelines, was of Wall Street, and on the financial side of his operations worked from within it, whereas Mr. Ford not only kept his financial operations outside of Wall Street, but has, on repeated occasions, given evidence that he shares that same suspicion and antagonism for Wall Street that the country generally has.

REASONS FOR FORD'S POPULARITY

THIS alone, however, would not account for the kind of public position that Ford has. Ford could readily have been the pioneer of the automobile and the outstanding leader in efficient production and distribution without ever impressing himself on the public as being anything other than a successful manufacturer—without otherwise ever coming into contact with the world of politics or public affairs.

It is the qualities of personality which Mr. Ford has, entirely aside from his place in the world as a great manufacturer, that has attracted to him that kind of public curiosity and friendly attention which at this moment makes him available as the political favorite of a decidedly formidable number of people. In the whirl of other immense events we may have forgotten it now, but it is worth recalling that the first impression Mr. Ford made on the world, other than that of his private occupation, was on that occasion during the early months of the war, when he put his attention on that bloody struggle, adjudged it undesirable—and took steps to end it. It is true his effort was disastrously unsuccessful, but the world was indelibly impressed with the fact that Mr. Ford is a man who regards a considerable number of things in the world as wrong—not only regards them as wrong, but has an impelling zeal to change them—has not only the zeal, but the courage and self-confidence to go out personally and make the effort. The first attempt he made to remold the world according to his ideas happened to be in precisely the most impossible field. But the greater the impossibility and the more utter his failure, the more vivid was the impression made on the public of Mr. Ford as one who has the courage to try, as a kind of combination of fighting Crusader and naïve Parsifal. After the fate of what was, after all, a magnificent adventure in idealism, the bizarre voyage of the Ford peaceship, it was a certainty that the world would no longer look upon Mr. Ford as a mere manufacturer of inexpensive automobiles; but would think of him as a public figure in the largest sense, and would constantly solicit him to all sorts of experiments in remaking the world to what promises to be, in the hopes of the dissatisfied. a better pattern, and the heart's desire.

It is of the essence of Mr. Ford's nature to respond to this sort of solicitation, whether it comes in the shape of organized invitation from outside, or from some impulsive urge within himself. When he reads his morning paper, he sees a lot of things that seem to him wrong; things which, if they went on within his factory, he wouldn't tolerate till sunset. And when he sees the world going badly, he has as much confidence in his ability to cure things within that larger field, as successful experience has taught him to have about his capacity within the walls of his own factory. The next thought, obviously, is, how to acquire toward the world, or at least toward the country, the relation that he has to his factory. And with that thought, comes inevitably the thing the old-time politicians used to call "the Presidential bee."

It is not meant to imply that the Ford boom is self-generated. In fact, the judgment of the present writer, who happens to have

watched it with more than common closeness, is rather the contrary. Undoubtedly, Mr. Ford has long thought about the Presidency. It could not readily be otherwise. Undoubtedly, also, if the question were asked whether Mr. Ford is a candidate for the Presidency (as, in fact, the writer has asked this question of men best situated to know Mr. Ford's intimate psychology), the answer would be, and at any time for a considerable period past would have been, "Yes." But if it be asked whether Mr. Ford has taken conscious steps to make himself President, the answer would be that he has taken some, but not a fraction of the number of conscious steps that have been taken in their own behalf, by many politicians within the two parties. Mr. Ford doesn't need to take conscious steps. In fact, the great call on whatever political genius Mr. Ford has, is to avoid taking too many steps, to steer clear of missteps in an unfamiliar field. Indeed, so far as Mr. Ford may now be a man wishful for the Presidency, his great concern must be, for the present, how best to let the current find its own course.

When a man arrives at the position with relation to the public that Mr. Ford has, hundreds of persons, some within his own entourage and some far distant from it, arise to supply all the initiative that is needed.

Within his own circle, advocates arise who are moved by sincere enthusiasm for their chief, or by unconscious realization of the elevation of their own fortunes that would follow their chief's advance. And far outside the man's own personal circle, in hundreds of distant counties, persons with imagination are fired to make an inexpensive gamble for high stakes, and take the steps which in a remote contingency might qualify each in his own community as the first Ford-for-President man.

Many of the things done by the Ford devotees, to be sure, could hardly have happened without Mr. Ford's consciousness of their effect on whatever are to be his political fortunes. Persons familiar with politics and with human nature in the largest sense will be skeptical against argument that, for example, that photograph of Mr. Ford in a markedly benevolent mood which has recently come to be a feature of the advertisements and circulars with which he brings the products of his factory to the attention of the public—that this has no other design than to sell more automobiles. A man of Mr. Ford's exceptional devotion to stark economy of effort in the commerical and industrial field, would hardly happen to discover, at the end of twenty years of experience, that a photograph of his own features would make his automobiles any cheaper or more attractive to the public.

But the great volume of the Ford movement comes from without Mr. Ford himself, and is a spontaneous result of the impression which the kind of personality he reveals has naturally made on the public. The chief contribution Mr. Ford makes to his political boom is to do the things he is moved to do, and to say, with the direct brevity that is a part of his individuality, the things he is moved to say. And chief among these contributions on Mr. Ford's part is his revealing himself as a man who has a compelling interest in the world of affairs.

FORD'S ATTITUDE

IT IS a new world to him. Rarely a man has had such a complete absorption in his own world, such an ignorance of the world outside his personal business as Mr. Ford had up to the age of forty-five or thereabouts. But once some extraordinary impact of immense circumstances—it was the war that did it—had pulled Mr. Ford's eyes away from carburetors and engine valves, his instant reaction was the same as it would have been to similar circumstances within his own business. "Here, you," he seemed to say to the world, "you're doing that all wrong. Let me show you!" That that first mismanagement of the world which he happened to notice, happened also to be the most colossally and wickedly wrong instance of its ill management; and that Mr. Ford's attempt to set it right was correspondingly colossal in its failure—that, to a man of Mr. Ford's bent of mind, was not a reason for quitting the job, but rather increased the itch to take a hand. Thereafter, event after event showed the increasing urge of his interest in public affairs. He bought a paper to carry his views, and maintained it at an expense which, if it were merely a commercial incident of his own business, he would have been the first to cut out. He fell afoul of a newspaper in a libel suit in which no man who was content to be merely a business man would have allowed himself

to become involved. When, in the course of a cross-examination incident to that libel suit, he was drawn into a field with which he was less familiar than he was with automobiles, and dismissed his bizarre errors with the phrase, "History's all bunk, anyhow," he was not merely camouflaging humiliation over the uncovering of his ignorance. He was stating, for the world as a whole, what had been a law of his experience in his own field, within which the scorning of precedent has been perhaps the foundation stone of his success. To a man who in 1893 had the impulse to conceive that the horse could be supplanted by something that comes through a rubber tube, and who clung to his idea until he made it good; who in detail after detail of his business experience scorned the accepted rule and always "thought across lots," as he once put it—to such a man it was not unnatural to minimize the value of the record of past experience for the only purpose he regarded as worth while, the purpose of doing things in the most direct and simple way.

Mr. Ford's whole career in the automobile business has been a case of flouting the conventional, and scorning all precedent. When automobile development reached the point where most of the other makers were putting emphasis on "style," on "stream-line" bodies, and fancy upholstery and gay colors, Mr. Ford's agents pressed him to do the same, and were fearful they could not keep their place in the race unless Mr. Ford would meet his competitors in the field of style and color. But Ford just laughed at them. He used to say, with the touch of the slightly scornful autocrat that is a part of his make-up: "You can have any color you like, so long as it's black." The direct way, the simple way, the least ornate way, was always Mr. Ford's way: and no citing of precedent, no fear of violated conventionality, could move him.

WHAT PREPARATION HAS HE?

THAT "history's all bunk" phrase may have caused hilarity among the sophisticated and the conventional, but it did Mr. Ford no great harm among the mass of voters who, in large part, not only share his absence of concern about the accepted past, but are most acutely desirous of having things done differently in the present and the future. For that matter, there was a good deal of intellectual snobbishness in the hullabaloo that was made about Mr. Ford's lack of formal education. So far as education means exercise of the contents of the skull to the highest sort of quickly and smoothly working efficiency, it is ridiculous to estimate Mr. Ford's extraordinary ability to run his fingers over a piece of metal and tell how many pounds strain it will bear, as inferior to some one else's ability to recite a chronological list of the English kings, or otherwise to show a mere memory for dates. Of course, this point ought not to be made without at the same time making an important qualification of it. Mr. Ford's present ambition is to function in a highly specialized field. And Mr. Ford would be the first to concede, from his own experience, that specialized functions call for specialized training. Mr. Ford, with all his self-confidence, has a strain of canny caution that must make him occasionally a little thoughtful about his capacity to run the United States. One wonders if Mr. Ford ever speculates on how he, himself, would react to the suggestion of letting Warren Harding or Woodrow Wilson take charge of the Ford factory.

One ought to be cautious, in so important a field as this, to draw careful distinctions; and especially to avoid seeming to say anything that would underrate the value of formal education. Not from any point of view of school-trained snobbishness, but as a thing derived from a considerable observation of wide varieties of men, it is necessary to say that the more or less systematized, rounded kind of education that comes from schools has some advantages not usually paralleled by the kind of intellectual training acquired in any occupation, extraordinarily refined and accurate though this latter kind of training frequently is. The lack of some degree of systematized education, of the sort not easily procurable anywhere except in schools, leaves, among many of the ablest men in the country, what might be called vacant areas in their cosmos, in their understanding of the world and their individual relation to it. This kind of defect Mr. Ford clearly has. On the other hand, one is tempted to say that Mr. Ford's lack of knowledge of history might be an asset in the kind of remaking of the world that he seems sometimes to visualize. When he was on his ill-fated peace ship expedition, a good deal of fun was made of him because, in answer to a question as to what he would do

about Schleswig-Holstein, he was alleged to have replied: "What's that?" It is precisely the fact that the statesmen and the peoples of Europe insist too strenuously upon remembering their various Schleswig-Holsteins, that peace, at the time of Mr. Ford's effort, was impossible; and those memories of the history of ancient conflicts still remain the chief obstacle to a happy and peaceful world.

But however these refinements about edution may interest the philosophical-minded observer of Mr. Ford's progress, they count nothing whatever with his advocates in the corn fields. All they feel is that there are a lot of things they want done, and Mr. Ford is the man who would do them in the directest and quickest way. They feel, in fact, that there are some things that ought to be done, which they can't quite define themselves; but they are confident Mr. Ford would fulfil the common formula of the dissatisfied and "do something" about it, and do it with a bang. The manager of Mr. Ford's newspaper, who is also one of the most earnest of those who wish to put him in the White House, when he sought for a commendatory phrase, said of Mr. Ford: "When he gets to Washington, he'll clean that place out. He won't leave a thing but the buildings."

And if it is true that the present mood of the American people, and especially of the American farmer, is what was implied in the story that begins this article, this sort of judgment of what Mr. Ford would do if he were President will commend him to a very considerable number of people.

THE FARMERS' VIEW OF FORD

BUT if the support of Mr. Ford for the Presidency rests on the impression that he would do big and thoroughgoing things, that impression of what his future might be rests in turn on an impression composed of vivid recollections of concrete things he has already done.

The writer happened to be in Iowa, and engaged in the work of trying to estimate the political mood of the Middle West, on the very day, last October, when Mr. Ford announced a cut of fifty dollars and upward in the prices of the various machines which he supplies to the farmer. That news came to a community and at a time in which the great cry of complaint was that everything the farmer had to buy was rising in price. Mr. Ford's spectacular leap against the current had a most compelling effect; and led to many conversations in which the writer sought to bring out the reason why a political movement directed largely against organized wealth, was turning to one of the wealthiest men in the world as its leader.

It turned out that the impression which the average man has of Henry Ford is composed of several high lights. Ford, manufacturing one of the commonest articles of daily use, makes it exceptional in its serviceableness, and sells it at a price which, compared to what the buyer is required to pay for other goods of similar size and complexity, is literally almost incredible. At the same time he pays higher wages to his workers, probably, than any other business man in any line. (Whether a careful examination of wages and conditions in Mr. Ford's plant would bear this out, I don't know. I have heard it questioned. But that this is the common impression throughout the country cannot possibly be questioned.) Then Mr. Ford buys a broken-backed streak of rust which management after management has tried in vain to run as a railroad, and, to the public, at least, gives the impression of making it go. (It is true that railroad accountants can point out how Mr. Ford is enabled to be successful by routing his own goods over it. But the public goes into no such minutiæ as that.) One single episode of Mr. Ford's management of that railroad was, in the shape in which the public heard of it, alone enough to go a long way toward commending him for the Presidency, in the country's present mood. This episode was published in the newspapers at the time, and throughout the campaign last fall, in that large section of the country where freight rates are a principal cause of discontent, no other story was more often repeated by the campaign orators, than the recital of Mr. Ford's application to the Interstate Commerce Commission to reduce—not to raise, but to reduce—the freight rate on coal; and the refusal of the Commission, as recited by the newspaper accounts and the campaign speeches, on the ground that for Mr. Ford to make this reduction would make things too difficult for the other roads in that territory. There may be error of detail in the story; and there may be (I am not sure there is) fallacy in the theory that Mr. Ford can run railroads better

than managements who follow conventional rules; but however that may be, that is the story as the public was told it and took it in. Can you imagine anything better adapted to cause the country to wish that Mr. Ford might be put in charge of the railroads, as well as the rest of the nation's business?

Further than this, Mr. Ford tells the country that if the wicked politicians in Washington will let him have Muscle Shoals, he will make fertilizer for the farmer cheaper than anybody has ever made it before. (I am told, incidentally, by competent engineers and business men, that Mr. Ford's offer to the Government for Muscle Shoals is one that bears every evidence of practicability and good faith.) It is as a result of this recent project of Mr. Ford's that, I am told, he has such a degree of support among Democratic voters of the South as no Northern man has had since the Civil War.

FORD'S IDEAS ABOUT MONEY

FURTHER than this, Mr. Ford holds out the idea that he can make a different kind of money than we now have and provide the country with a banking and currency system more desirable than the present one is felt to be by that considerable section of the community whose most frequent relation to currency is in the rôle of those who have to pay it to somebody else. This is an aspect of Mr. Ford's candidacy—this lure of something vaguely in the nature of cheap money—which the country is likely to hear more about. All that Mr. Ford has said so far is indistinct. Apparently he has not crystallized his own ideas. About all he has conveyed in this field is the idea that he regards gold, and the necessity of a gold standard for currency, as capable of being described in the same phrase with which he described history. It may be that Mr. Ford will find himself faced with difficulties when he is called upon to tell more definitely what he has in mind. But the alluring impression he has already made is much the same as that which, twenty-seven years ago, started tens of thousands of hard-pressed debtors following Mr. Bryan in his crusade against the cross of gold. Mr. Bryan didn't win; but if there were space here it could be demonstrated, I think, that to-day there is a larger element of our population than was the case in Bryan's time, who are in such a position as to lead them to think that their interests would be served and their burdens lightened by some cheap money device. This is too big and complex a subject for the present discussion; but thoughtful persons will find interest and profit in considering whether this country will be able to go through with the conditions of the next Presidential year without being in one degree or another infected by temptation toward that dilution of credit or currency, or the decrease in the value of the currency unit, which has already spread over a considerable portion of the world.

So much for Mr. Ford, and these fragments of his possible platform, the things that commend him to a good many voters. That he will figure largely in the Democratic situation next year is accepted by the Republican leaders with pleasure, and by most of the Democratic leaders with some dismay. The Republican leaders, reckoning on Mr. Ford's tendency to do unconventional things, count upon him first to make a chaotic commotion within the Democratic party, and then in the event of his not getting the nomination, to start some kind of an individually lead third party and carry into it that considerable following of Democratic voters which he will have attracted to himself in the preceding effort to get the Democratic nomination. Many of the Democratic leaders are by no means free from the same concern. With the exception of a very few who have particular reasons, almost none of the regular Democratic leaders are for him. They don't want a candidate who would be conspicuously and flagrantly not a party man, and who, in the office, if he should get it, would flout the party and the party leaders. Even those Democratic leaders who, as a matter of cold judgment, think that perhaps Mr. Ford would do as well as or perhaps better than any formal party man as a vote-getter, would still prefer to choose a regular party man. They think the situation is such that success will come to the Democrats anyhow, and they don't want to throw away the fruits of their good fortune on a comparative stranger. Whatever progress Mr. Ford makes will come not from the leaders but from the people, through the operations of the direct primary, and through pressure from the voters on the little local leaders. That progress, unless it is arrested, either by Mr. Ford himself or by some accident, will be considerable. For example,

Iowa is so Republican a state that there is a phrase which has been current among politicians for a generation to the effect that, "Iowa will go Democratic when Hell goes Methodist." Nevertheless, I have been told by competent judges of the present state of feeling in the Middle West that Henry Ford, running on the Democratic ticket, could readily carry Iowa for his party.

HIS CHANCE OF SUCCESS

NEVERTHELESS, Mr. Ford may show a great deal of strength and yet readily fail to get the prize. The Democratic party has a rule which in times past has more than once operated to keep the nomination away from a man who happened to be, in one degree or another, an "outsider," from the point of view of those who hold the inner sources of power. This rule is the one which requires that to get the Democratic nomination for the Presidency, a man must have two thirds of the entire number of delegates. (In the Republican party a mere majority is required.) The way this rule works is to give exceptional power to the party managers on the inside. A candidate may be popular enough, or strong enough, for one reason or another, to get more than half the number of delegates—to get any number of delegates up to a little short of two thirds; but the inner group of party leaders can almost always command a little more than a third of the convention, and command them usually with a loyalty and discipline greater than that yielded to the outsider. The result is that these leaders are able to sit tight with their veto power of one third until the outsider wears himself down; whereupon the insiders are able to make such disposition of the prize as they may agree upon among themselves.

As things stand to-day, if the Democratic Presidential convention of next year were to be held in the immediate future, it would probably turn out that roughly, a third of the strength would be held by Mr. Ford and his friends. Another third would be held by advocates and devotees of Mr. McAdoo. The final third, which would constitute the balance of power, would be held by a little group of the more "hard-boiled" old leaders. It would be composed largely of delegates from the big states of New York, Illinois, New Jersey, Ohio, and a few others. There happens to be an intimate little fraternity of the leaders of these big states, and, standing together as they do, they are very powerful. So far as a candidate of their own is concerned, they would probably, in the early days of the convention, by some kind of mutual understanding, distribute their strength more or less perfunctorily among Governor Smith of New York, ex-Governor James M. Cox of Ohio, and possibly a few others. But for the purpose of keeping Mr. Ford or any other outsider from getting the nomination, they would be very compact indeed.

In such a lay-out as this, the last-mentioned third would probably be managed by various kinds of strategy to maintain just enough strength to prevent Mr. Ford from getting the nomination. Once this were accomplished, the remaining situation would present aspects rather too complex to be treated here in detail. All this, of course, is no more than one person's surmise; and is subject to the further qualification that it is a surmise based on what might readily happen if the convention were to be held next June instead of the June of the following year. What may happen within the intervening year is, of course, a steadily diminishing quantity. For the number of new figures who can be injected into the situation must necessarily grow more limited with every day's whittling down of the time necessary to make any new figure sufficiently familiar to the country. Nevertheless, it still remains true that the situation of June, 1924, can be utterly different from what would seem probable if the convention were to be in June of the present year. A score of things may happen. If the state of Europe and our foreign affairs generally is to the front, that, by an axiom of politics, will take precedence in public interest over all other issues; and the nomination may be determined by the attitude of one candidate or another on this issue. Aside from foreign relations, the "dry" versus "wet" issue will certainly cut a good deal of figure in the Democratic situation.

Science Remaking the World

V. THE INFLUENCE OF THE SUGAR POWER IN HISTORY

Its Effect on International and Internal Politics, Economics, and Populations. Sugar and the Slave Trade. The Origin of Sugar and the Rivalry Between Sugar Cane and Sugar Beets

By EDWIN E. SLOSSON
Science Service, Washington, D.C.

SUGAR cane, according to an old Hindu legend, is a plant escaped from Paradise. This Oriental delicacy rarely found its way to the West. The Greeks and Romans had to satisfy their taste for sweetness with the honeycomb. The Hebrew poets when they wanted to praise the loved one or the law could only use honey as a comparison. A modern poet has the advantage, for he can compare his sweetheart to saccharine, a coal-tar product 500 times sweeter than sugar. It would be interesting to ascertain, if that were possible, whether Nature has made equal progress with science, and whether the modern American girl is 500 times as sweet as the ancient Hebrew maiden.

When the Orient invaded the Occident in the Eighth Century, sugar was introduced into Europe. The Arabs as they conquered Spain started the cultivation of sugar cane. Five hundred years later when the Spanish conquered the New World, they planted the cane in the West Indies where it found a climate exactly suited to it and thrived exceedingly. A sugar mill was set up in Cuba as early as 1543.

The English navigators when they invaded the Spanish Main came back with two outlandish habits, a taste for sugar and tobacco. You will remember in Kingsley's "Westward Ho" how the veteran sea-dog, who had once seen Columbus, was pleased as a child when given a piece of sugar-cane to suck.

Queen Elizabeth had a sweet tooth and had the strange delicacy served at her table. England owes much to the fondness of the Virgin Queen for exotic condiments. British sailors knowing her fondness for peppercorns used to stop for them on the Guinea coast of Africa, and so British trading posts gradually grew up there. Of course, these holdings of Great Britain have been expanded through the war by the annexation of adjacent German territory.

When it was a lifetime's adventure to cross the Atlantic, merchants were not tempted by anything so coarse, common, or bulky as iron, coal, or grain. To recompense the costs and risks of travel there must be at the other end of the voyage something rare and precious—a nugget of gold or a lump of sugar.

Just as the East Indies were to their Dutch conquerors nothing but a giant spice-box, so the West Indies were to their colonists and plantation owners a giant sugar-bowl. The native Indian race which Columbus found was worked to death by the Spaniards and to-day is hardly to be found in its purity, though a tinge of its blood still warms the cheek of the Martinique girl and mingles with the Negro and Spanish strains in the Cuban. To replace the dying race of West Indian natives the Spaniards transported Negro slaves across the Atlantic. To work the plantations of Guiana the magic wand of wealth later summoned the Chinaman and the Hindu from beyond the Pacific! Men, white and black and red and brown and yellow, came to the island of sugar to make their own fortunes or to labor as slaves to others—but always to satisfy the sweet hunger of the European. The fierceness of this international conflict may be judged from the fact that the flags of six foreign nations have waved over the West Indies—Spanish, French, English, Dutch, Danish, American—not to mention the native flags of Cuba, Haiti, and Santo Domingo and the skull and crossbones of the pirate.

Why this frantic scramble for islands of sugar? Because the European, like a child

from a poverty-stricken home, had been starved for sugar. The man of the Middle Ages could eat honey—like a bear—or the few sweet fruits afforded by the temperate zone. But pure unmingled sugar was a gift for kings. When the sugar cane plantations were opened up, Europe broke the world's jam-closet and like a sugar-starved child began to stuff himself with avidity. If to-day we manifest an over-fondness for sweets—may it not be just a natural consequence of long centuries of too little sweetness?

He who visits the West Indies to-day will find no little prosperity, but the islands are hardly the commercial jewels that they were in the days of the slave plantation, when British statesmen balanced a small West India island against the whole of Canada and when the Dutch considered Guiana of equal importance with New York. In the Eighteenth Century, the island of San Domingo absorbed two thirds of the foreign commerce of France. Because of terrible toil and climate the strongest slaves were sent to San Domingo and here arose as a result of a servile insurrection, the first Negro republic in history.

Sugar was associated with slavery for three reasons: the sugar cane is a tropical lowland crop, it is easily cultivated by gangs on huge plantations, and, as a staple export crop in a competitve market, it is most profitably raised where labor is cheapest. The free white farmer didn't like the climate or the condition of labor and he couldn't afford to sell his services so cheaply as to underbid the slave who needed no wages but a cotton shirt, a straw hat, and a little food in addition to the sugar cane which he chews. So all the sugarlands of the West Indies and of the southernmost mainland of the United States became aristocracies of white plantation owners directing the labor of Negro slaves—

CUTTING CANE ON A CUBAN HILLSIDE

For miles the Cuban countryside is covered with cane fields, which furnish a prodigious quantity of cane for the busy mills. Since the war Cuba has suffered very seriously because of the great drop in the price of sugar

A PORTO RICO SUGAR MILL

The successful manufacture of sugar from sugar cane requires, primarily, cheap labor. Therefore, in the early days of America, African Negroes were brought across the Atlantic in large numbers to work on the plantations, and their descendants in many tropical lands, occupying a position that is little above peonage, still labor in the cane fields

or, worse yet, living as absentee landlords on incomes extorted from the slaves by overseers. The English alone imported 2,000,000 Negroes from Africa to America between 1680 and 1786—that is to say before cotton had replaced sugar as the chief economic basis of slavery.

The relative decline of the West Indies in the Nineteenth Century was due in part to the abolition of slavery; in part to the opening of new sugar cane plantations in the Pacific and elsewhere, and most of all to the creation of the beet sugar industry. Cuba, Porto Rico, Barbados, and Jamaica are proofs that sugar *can* be grown by free labor, but not at the old fantastic profits, and countries like Haiti have reverted to their native and natural tropical idleness. One has a horrible fear that if New England had had a climate suitable for raising sugar cane instead of stone fences and high schools even the Pilgrim Fathers would have succumbed to the temptation of easy profits, and instead of selling their slaves down south or going in for abolitionism they would have transformed New England into New Africa. The British colonists in Jamaica were forced to free their slaves by stay-at-home Englishmen who were under no temptation to raise sugar cane by forced labor; had these colonists enjoyed complete "home rule" as a self-governing Dominion, "squatter sovereignty" might have kept slavery alive to-day.

The influence of the sugar power on history began about five hundred years ago and it has figured in international affairs ever since. The first sugar trust was in the hands of the Venetian merchants, who were the middle men of the trade between the Orient and the Occident. They catered to the taste for sweets, as well as other Eastern luxuries, that had been brought back to Europe by such Crusaders as returned from their fruitless efforts to gain the Holy Land. They brought up sugar from Syria, Egypt, and the islands of the Mediterranean where the growing of cane had been introduced by the Arabs, and, after refining it according to a process of their own, sold it to the Spanish, Portuguese, French, and English. In 1319 Venetian ships brought 100,000 pounds of sugar to England to be exchanged for wool. "Venetian loaves" (pains de Venise) were good as gold the world over.

But like all monopolists, the Venetians took too great advantage of their advantage and so lost it. As the demand for sugar increased they boosted the price. By 1482 the cost of sugar in the London market was $275 per hundred weight, which was almost double

what it had been a century before. So the victimized nations started out to see if they could not find for themselves a new way to India, where the sugar came from originally. The Portuguese led in the race. In 1422 Prince Henry, the navigator, took the cane to the Madeira Islands, and by 1472 it was growing on the Island of Saint Thomas, off the African coast. In 1531 the Portuguese took it to Brazil where it has been one of the mainstays of the country ever since.

By 1500, when the Venetian monopoly had been broken, the price of sugar was reduced in London, to only $53 per hundred.

The Dutch got a monopoly of the refining business by buying the raw sugar at Lisbon and taking it home to be purified. But the sacking of Antwerp by the Duke of Parma in 1585 gave the English a chance to set up refineries of their own. The Dutch trade was finally put out of the way by the British Navigation Acts, and England secured control of the sugar market of the world, which she held until the sugar beet broke the monopoly of the sugar cane. These same Navigation Acts, I may here mention—for a logical order seems preferable to a chronological—aroused the hot resentment of the American colonies and were one of the chief causes of their revolt against the mother country. The Acts prohibited the direct importation of sugar and molasses from the British West Indies or foreign colonies to New England. Now the New Englanders needed the rum from molasses to trade to the Indians for fur, so this caused a shift in ethical standards and smuggling came to be regarded as patriotic virtue as well as private profit.

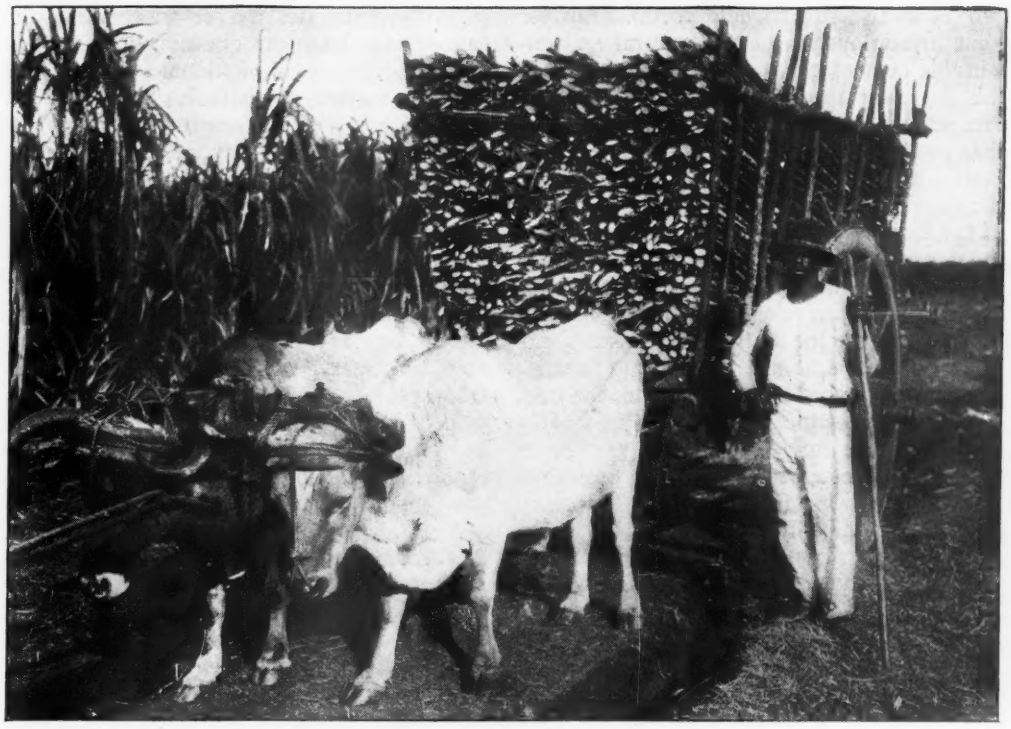
But sugar has always played a double rôle in dietetics and politics. While it was putting the punch into the punchbowl, it was on the other hand promoting the use of milder stimulants that were to rival alcohol. The alkaloids, caffein in tea and coffee and theobromin in cocoa and chocolate, have the power of stimulating the mental faculties without befuddling them. The English discovered in the middle of the Seventeenth Century that one could talk on coffee quite as brilliantly and much more sensibly and keep awake considerably longer than on beer and wine. So coffee houses sprang up in London and became literary and political centres. They filled the place of the forum of the Roman republic and the newspapers of our own republic, and we are all familiar with their influence on English life and thought of the time. But they might as well have been called "sugar houses" as "coffee houses" since sugar was consumed in as great quantities and contributed to the stimulating effect.*

But in order to stimulate thought in England by means of the coffee it was necessary to stimulate sugar production in the West Indies and no better way was known of doing this than by stimulating the slave trade. The British started growing cane in Barbados in 1641 and at once began to import Africans. The English African Company was incorporated in 1662 by Charles II, with his brother, the Duke of York, at its head, on the express condition of bringing 3,000 slaves a year to the West Indies. The trade proved profitable, and by 1700 about 25,000 slaves had been imported in British ships to the British colonies.

Negro labor was preferred to white. A white Christian servant, from England, delivered F. O. B. at Barbados, sold for ten pounds, while a black slave would bring twenty pounds. The white servants were bounded for a limited period, usually seven years, so the planters worked them harder to get all they could out of them in the period of indenture, but took better care of their Negroes since they were a permanent investment.

Whatever slavery has meant in the past, whatever the Negro question means to-day, this is largely due to sugar. For if it had not been for the sugar plantations in the Caribbean region Africans would never have been brought to America in such large numbers. It was upon the sugar plantations in Louisiana that they were worked hardest and treated most cruelly, and reports of these conditions especially aroused the sympathy and wrath of the Abolitionists and led to the overthrow of the slave power, which was, on the start, the sugar power.

*I will acknowledge here my indebtedness for various points to Miss Ellen D. Ellis's "Introduction to the History of Sugar as a Commodity," not because I owe more to her than to other authors but because I want to take occasion to commend this sort of research to students in search of a subject on which to exercise their talents as investigators. This is a Bryn Mawr thesis and a similar thesis could be written about any of the commodities of our daily life by one having the ability to follow a single thread through history and not lose sight of its human interest, A bigger book of the same humanistic sort is Lippmann's "Geschichte des Zuckers." I must also mention, now that I have begun to give credit where it is due, Surface's "Story of Sugar" and Harris's "Sugar-beet in America."



A LOAD OF CANE BOUND FOR A MILL

The laborers of some of the tropical sugar plantations are not much better than serfs, nor could the cane sugar producers compete with the beet sugar fields if the rates of wages were the same

Fortunately the sugar beet can be raised by the white man in the temperate zone by free and high-priced labor. When in 1747 Andrew Marggraf of the Berlin Academy of Sciences first extracted sugar from beets the sugar cane had a competitor fated to share its world dominion on equal terms. For a long time, however, the cane ruled alone. Not till 1799 was the first factory built in Silesia and not until the Napoleonic wars cut France off from the sugar trade was the beet cultivated on a large scale. In 1806 the French Government commenced the modern practice of encouraging beet sugar with bounties and in 1812 were established beet sugar schools. At that time there were 40 factories in France, and sugar sold at 30 cents a pound. England offered Achard, inventor of the process, a bribe of $30,000—later raised to $120,000—if he would give up making sugar from beets and declare it a failure.

In 1833 the British Government took the bold step of abolishing slavery in all the British colonies. It was a great triumph of humanitarianism but it came near ruining the West Indies, for the rival cane-growing possessions of the Spanish, French, and Portuguese continued to use slaves, and continental Europe was building up the beet sugar industry.

Cane sugar continued to rely upon its natural advantages of tropical sunshine and cheap labor while beet sugar was promoted by the combined skill of the chemist and agriculturist as well as favored by the legislator. Under a strict régime of eugenics the beets got sweeter and sweeter year by year, while by the skilful use of bounties beet sugar was forced into markets which the cane once controlled. Even the English, to whom free trade was almost a religious dogma, were for a time tickled to see—for so they saw it—the continental powers taxing themselves in competition for the privilege of supplying the British jam factories with sugar at less than cost of production. The English only feared that the continental powers would too soon ruin themselves in this race for the British

market and so sugar would go up. But for some mysterious reason the natural and immutable laws of commerce failed to work in this case, for the high protection countries prospered most and it was the British Empire that was threatened with ruin. So the British with their usual good sense shelved the dogma that would not work and negotiated the Brussels Convention of 1903, by which the powers mutually agreed to abolish bounties, a step which, according to the latest volume of the Encyclopedia Britannica, "undoubtedly saved the British West Indian sugar trade from extinction." But in 1913 Premier Asquith succumbed to pressure from the free-trade element of the Liberal party and withdrew from the convention. The result was that England bought more than two thirds of her sugar from her future enemies, Germany and Austria, and only 4 per cent. from her own tropical possessions.

GREAT BRITAIN AND SUGAR

BUT the Great War put a stop to this *laissez-faire* policy, for in August, 1914, the British Government took control of the sugar trade and began to sell sugar for less than it cost. This policy served its purpose of keeping the price of sugar from rising out of reach, but it caused a government deficit of about $120,000,000 to do it.

After the war a duty on imported sugar was maintained and in 1919 Premier Lloyd George agreed to give a preference of about a dollar per hundred weight on white sugar produced within the British Empire. In 1921 the British Government subscribed £775,000 to start beet growing in England, and guaranteed interest of 5 per cent. to investors in the industry. The sugar beet industry has never taken root on English soil though there is no climatic reason why it should not thrive there.

There is, of course, not enough land to spare at home to grow all that England needs, but in the years before the war while Germany was increasing her acreage of beets, land was gradually going altogether out of cultivation in the British Isles. It will be immensely interesting to see if England succeeds in her belated but energetic efforts to regain lost ground in the beet business and whether she will definitely follow a policy of attempting to maintain economic independence either within the Empire or the Disunited Kingdom.

At the antipodes we see another striking case where the sugar question has forced a radical decision of national policy. The Australians are particularly fond of their "lollies" and all other forms of sweets. They eat more sugar than any other people—112 pounds per capita per annum. Yet Australia does not raise much of the sugar she consumes, although there is abundance of land suitable for both beets and cane. In the northern and hotter half of the island continent there used to be thriving and profitable plantations of cane, but they have been deliberately sacrificed to preserve the principles of Australian labor policy, a white Australia and a high standard of wages. The plantations used to be worked with Kanakas, that is, with natives of the Pacific Islands, imported for the purpose for a limited period, and there are now several hundred million Chinese, Japanese, and Indians close at hand who would be glad to come on any terms, but they are rigidly excluded by law. I asked a member of the Australian Government why Australia preferred to let these vast areas of tropical land lie waste when they might be worked by indentured labor, not only to supply the needs of the country, but to add to its revenue by export. He replied: "When an industry has to be carried on by low-grade labor living under such conditions as prevail on sugar cane plantations we do not regard it as a profitable industry, and when an industry is continually losing we prefer other people should run it rather than we." But the Australians do not carry their principles to such an extreme as to refuse to use sugar grown on the plantations of other countries as the radical Abolitionists refused to use sugar or cotton grown by slave labor. The only solution to the problem of tropical agriculture that I can see is to substitute for native labor something that will work harder and longer hours and live on cheaper stuff and not suffer from it and never strike, and this is machinery. Though where the power to run the machinery will come from I do not yet see.

It was sugar that forced England to abandon her traditional free-trade policy and to adopt protection in all its forms; tariff duties, preferential rates, limitation of importations, embargo, government control, and subsidies for home production. Everywhere sugar is the cyclone centre of commercial conflict and economic discussion.

Although cane sugar had three hundred years the start, beet sugar had caught up with it by the time the Great War began. In 1913 the cane and the beet were each producing about 9,000,000 tons. But the war raged for four years over the beet belt of Europe. Germany was first and Russia second in the production of beet sugar. The beet-growing land of Belgium and Northern France were within the German battle lines. The cane-growing countries were not able to profit so much as they might by the disablement of their rival sugar because of the scarcity of shipping.

Beet sugar has not yet recovered from the blow given it by the war. But it is catching up. In 1920 a fourth of the world's sugar was contributed by beets. In 1921 a third of it: about 5,000,000 tons from beets in comparison to the 11,400,000 tons produced from cane. That is to say, in comparison with pre-war conditions the production of cane sugar has slightly increased and the production of beet sugar has been reduced nearly half.

CRUSHING SUGAR CANE IN A CUBAN MILL

The island of Cuba is very largely given over to the production of sugar cane, and hundreds of mills—large and small—crush the stalks and produce crude sugar which is sent by ships to the large refineries of the United States and Europe

It is not necessary for me to enlarge upon the change wrought in Europe and the tropical islands by this shift in the flow of wealth from sugar. The Indies, West and East, experienced a revival of their old time prosperity. Cuba, before the American occupation, produced a million tons. By 1922 Cuba raised 4,000,000 tons of sugar for export, Hawaii more than a half-million, the Philippines 200,000, Porto Rico more than 400,000. But the United States proper—as we improperly call it—produced less than 200,000 tons of cane sugar, mostly in Louisiana, a little in Texas. In beet sugar on the other hand the United States produced nearly a million tons in 1921, twice the crop of ten years before.

Here we see the advantage of having two strings to our bow, to have a hold on both tropical and temperate territory. We get now about half our sugar from insular possessions. The Philippines would grow all we need.

The wild scramble for sugar and the sudden shifting of its sources set prices in fluctuation and induced wild speculation. At the end of the war United States dealers had contracted for a million tons more sugar than was wanted. Java had rushed in 400,000 tons to meet the demand. Then came the crash. The price of sugar fell to one quarter within six months. At the beginning of 1922, it was below the cost of production. Orders were cancelled all around. Credits were forfeited. Deliveries were refused. American buyers refused to accept the consignments they had ordered, or could not pay for them, which amounted to the same thing. Cuban planters who had spent in advance the money they expected to get for their sugar in the purchase of American goods were ruined and the goods were refused and returned to the manufacturer. Who was most to blame for all this it would be impossible to say. Each accused the other party of dishonoring its contracts. But the net result was to impair the reputation of the United States in Latin America and in the Netherlands and to damp our hopes for large and steady foreign trade.

Sugar differs from almost all of our other foods in being pure. When a chemist uses the word "pure" he does not mean freedom

from dirt or immorality but freedom from any ingredients except the main substance. Pure water we have in the rain and pure salt in the rock crystal. But the foods we get from plants and animals are all very much mixed and each contains many or all the various kinds of compounds we need for nutrition, the fats, carbohydrates, proteins of several sorts, mineral salts, and vitamines. But the chemist has learned how to separate these complex natural mixtures and extract in practically pure form the particular substance he wants. This refining process was first applied to sugar, but now we have corn starch and gelatin and will have more such pure foods in the future. This gives us concentrated nutriment in a neat, attractive, portable, and preservable form, but no such single-substance food is capable of long sustaining life alone, and we have to look out that we get with it a sufficiently varied diet to give us within the day's ration all the other necessary nutrimentals.

THE REFINERY

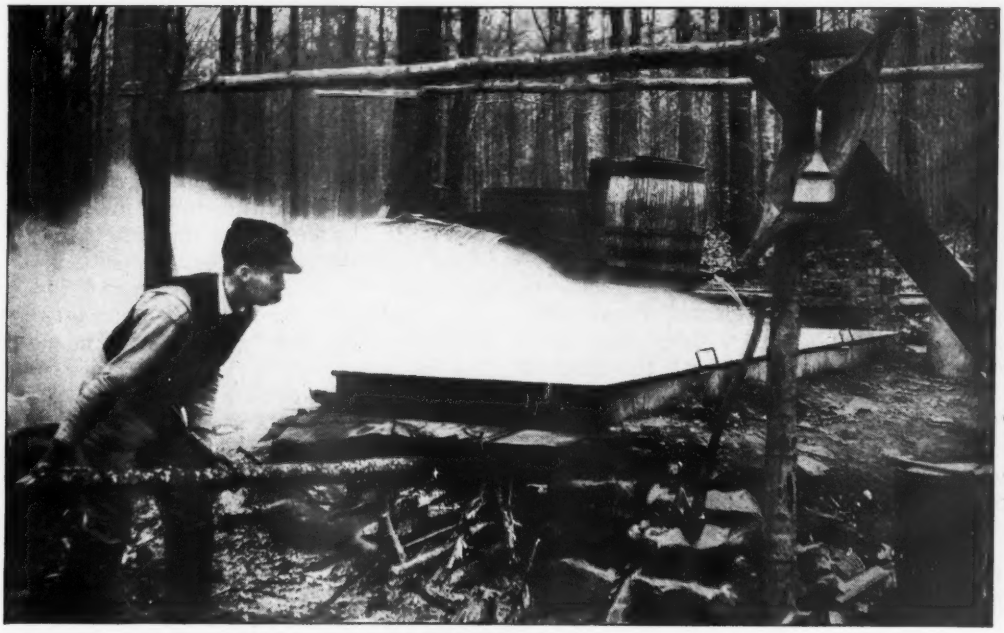
I WILL not discuss the dietary problem thus presented, but call attention to the sociological significance of chemical control, which is that it involves scientific management and tends to capitalized centralization. The Congressman who tries to settle a tariff dispute in the sugar schedule finds himself tangled up in a rotating ray of polarized light and has to decide between the opposing claims of right-handed and left-handed molecules of hexoses that are as much alike as his two gloves. The refinery dominates the sugar industry as it does the petroleum industry.

The interesting little "Story of Sugar" that our grocer hands out to us says: "Sugar is sold to-day with the smallest margin of profit of any food product that is handled by the modern grocer." I have no doubt that is true. The cost of refining raw Cuban sugar into granulated white is now about one and one half cents per pound. The pre-war cost was half a cent. Any centralized, efficiently managed and scientifically controlled industry can turn out and distribute an amazingly large amount of its product at an amazingly small margin of profit per unit and yet make an amazingly large fortune in the aggregate. We have met with this same situation in the other industries that we have considered in these articles, the refining of petroleum, the making of automobiles, the preparation of coal-tar compounds, the packing of meat products, and the refrigeration of fruits; in fact it is characteristic in general of all the new industries that have grown up through the application of science. If these are not "natural monopolies," like water power and street cars, they are quite as naturally monopolized. Since science will more and more become the dominant factor in our industries, it is the problem of the future to find out how to retain the advantages of combination and coördination and expert control and yet get the greatest amount of benefit to the public out of it. Smashing up a trust now and then may be a relief to a more or less justified feeling of resentment on the part of the public, but it is of doubtful benefit to the industry and does not always hurt the owners so much as was desired. What is needed is a constructive rather than a destructive form of public control.

The sugar industry has been treated alternately by our Government as a spoiled child and as a dangerous enemy. I do not know which treatment has been the worse for it. The history of the anti-trust wars of 1910-12 make very exciting reading, but leave me in the same perplexed state of mind as the boy who listened to Old Kasper tell about the Battle of Blenheim: "But what good came of it at last?" quoth little Peterkin. Anyhow it shows what a powerful factor sugar is in politics and finance which is all I am concerned with here.

The most furious commercial war this country has ever known was that fought from 1880 to 1892 between the Westerners led by Spreckels of the Pacific and the Easterners led by the Havemeyers. When Teuton meets Teuton then comes the tug of war.

The refining of sugar in this country dates back to 1805 when two German immigrants, William and Frederick Havemeyer, set up a small refinery in what is now Bohemia, that is to say, Greenwich Village. During the Civil War, another German, Claus Spreckels, started a small refinery in San Francisco and by 1875 had gained control of the Western half of the country. The Easterners had more or less cheerfully acquiesced in this, but when Spreckels invaded their domain by establishing a refinery in Philadelphia they declared war. In the end Spreckels was



MAKING MAPLE SUGAR IN VERMONT

Had the maple trees of New England been as prolific as is the sugar cane of the tropics, or had the climate been suitable for the widespread growth of cane it is probable that slaves would have been imported in large numbers, as they were in the South. Maple sugar, however, is not a competitor of cane and the price is high enough to pay the New England farmer for the time he spends in making sugar from maple sap

forced to surrender, but a third of the Eastern refiners were knocked out in the fight.

Besides affecting our legislation on tariffs and trusts sugar has been an important factor in the liquor problem. Before the war the candy store was steadily displacing the saloon. Ice cream, soda water, sundaes, and candy were quietly changing the popular taste and being recognized as a substitute for alcoholics. So the transition to prohibition was effected with comparative ease. By saving the money formerly spent for liquor and cutting down also on sugar at Hoover's behest, America was able to do her bit over there. I need not draw the obvious conclusion which I have drawn in my former articles.

About $500,000,000 is spent for soft drinks in the United States every year. In the bottled goods the color and flavor are ordinarily coal-tar dyes, quite harmless but not nutritious. The food value of these beverages comes from the sugar. The ordinary half-pint bottle contains usually about from .4 to .9 of an ounce of sugar, about two heaped teaspoonfuls per drink. This gives between 46 and 103 calories of energy, generally about 70 or 80 calories per half pint. Besides the water and the sugar you get within every pint some three pints of carbon dioxide gas—if you drink it quickly enough. The expansion of this also cools you off. The nutritive value of the soft drinks is higher than that of most fruits and vegetables for the same weight. Soda water or pop has about the same energy food value as buttermilk and three times as much as watermelon.

So you see that the soft drink industry which has reached an unparalleled development in America has very considerable influences on our dietary and our budget. Its moral influence is also apparent, for it would have been practically impossible to have ousted King Alcohol if there had not been a rival beverage in the field.

Sugar has always been the enemy of the saloon. On the free lunch counter of former days, as you may have noticed—I mean as you may have heard—sweet things were never served, only things salt or sour, like potato chips and pickles. The restaurants and lunchrooms attached to barrooms often refused to serve sweet deserts of any kind be-

cause they cut down the demand for liquors. The advice of our grandmothers to their daughters was: "If your beau doesn't take sugar in his tea or eat candy look out for him. He is likely to be a drinking man." Yet our grandmothers knew nothing of the chemistry of the carbohydrates— they only knew men.

Sugar is superior to alcohol as a self-starter. Experiments in the Nutrition Laboratory of the Carnegie Institution of Washington, shows that sugar is absorbed and consumed in the body as soon as alcohol or even sooner. Within four to ten minutes after sugar is taken on an empty stomach the effect is shown in the rise of the respiratory quotient. Milk sugar and fruit sugar begin to burn up in the body quite as soon. Glucose and maltose require 20 minutes or more before they become important in metabolism.

In experiments at the Minnesota Experiment Station, it was found that 5 ounces of sugar a day added to the ordinary diet increased the available energy of the ration by 25 per cent. There was increased economy in the utilization of protein by 25 per cent. with the added sugar—although sugar contains no protein.

A TRAINLOAD OF SUGAR BEETS AT THE MILL

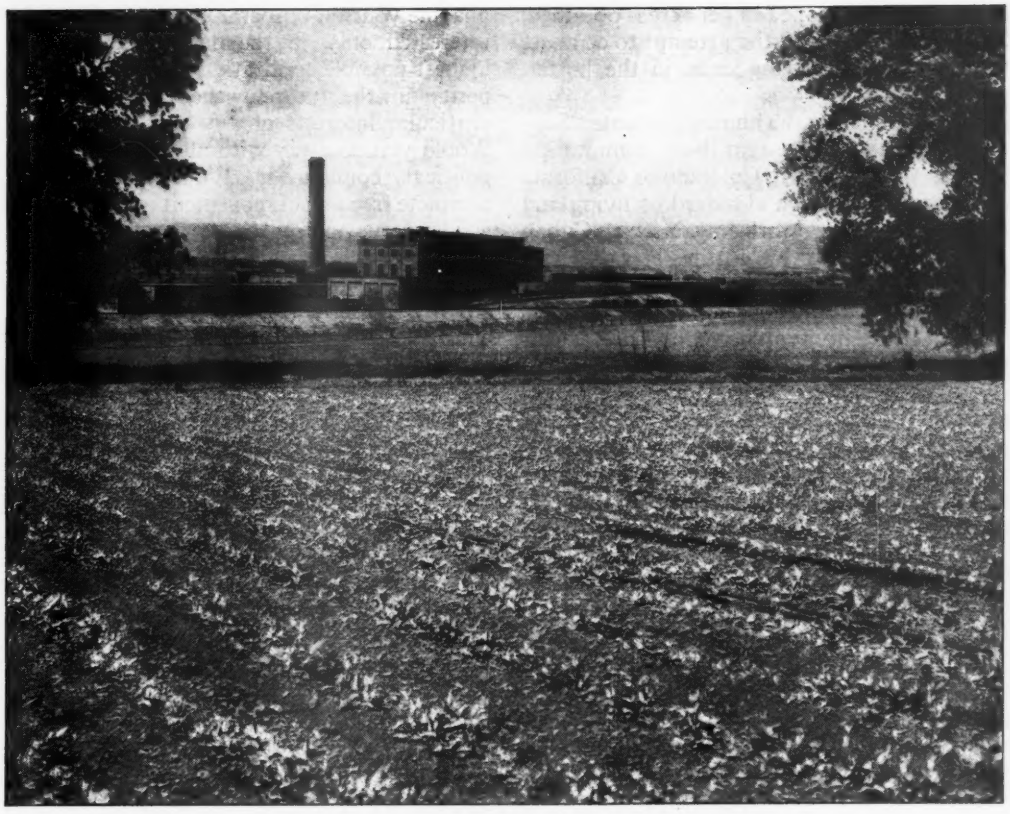
It has been just about 150 years since sugar was first extracted from beets, but in 1913 about half the world's production of sugar was from this source. Germany, France, and Austria produced large quantities of beet sugar, and the United States had developed the industry to goodly proportions. The war, however, gave the beet sugar industry a serious blow, and now about one third of the world's production comes from beets

A study of American dietaries in 500 representative families shows that sugar in the various forms of food provides 10 per cent. of the total energy. A man receives in his food and expends in heat and muscular work between 2,500 and 3,500 calories a day. Multiply this by 110,000,000 people and 365 days, make due deduction for women and children and you will get the total human energy of the U. S. Divide this by ten and you will see how much we owe to sugar. I haven't time to work out the problem just now and besides you will remember it better if you do it yourself—as the teacher says.

Sugar beets stand at the head of all the crops of the temperate zone in the amount of food energy that can be produced in a given area. They are the most efficient of all our machines for the fixation of solar energy in a form so that it can be used in the human body to produce muscular power. An acre of sugar beets may produce nine million calories of energy; more than twice as much as potatoes (four million), three times as much as barley (2.7) or oats (2.5) and more than four times as much as wheat (2.2) or rye (2).

Sugar is a quick-action energy-producing food. It therefore comes more and more into demand as daily life speeds up. Its consumption might be used as a measure of the individual activity of a country. The United States stands at the head of the list in the amount of sugar used, 5,010,757 tons in 1922. This is an increase of $17\frac{1}{2}$ per cent. over our consumption in 1921.

From this it appears that we are consuming 102 pounds apiece on the average during the year. I figure out that the average weight of the American people must be about 111 pounds, so we are rapidly reaching the point where we may be said to eat our weight in sugar every year. Some of the younger generation have already surpassed that point. Whether we as a whole are eating more sugar than is good for us is a question on which there is no conclusive evidence, although few questions are more important. In dietary experiments it has been found that as much as



A COLORADO BEET SUGAR MILL

Surrounded by the beet fields that furnish the supply. In Europe the beet fields are more productive by from 25 to 50 per cent. than are those of the United States

three-quarters of a pound of sugar a day can be included in the ration of a hard-working man without injurious consequences. This in nearly three times our average national consumption. But it does not determine how many pounds of candy an idle girl should consume, at the present price.

All peoples seem to have sweet tooths—or is it sweet teeth?—and how much sugar they will eat depends merely on how much they can afford to buy. Before the war the per capita consumption of sugar by the leading nations of Europe was: United Kingdom 87.9 pounds, Germany 39.7, France 39.1, Russia 15.8, Italy 10.1. Since the war Italy has raised her ration of sugar to 15.4, an indication of an access of energy which is appearent in various others ways. Great Britain on the contrary has reduced her ration to 71 pounds, of which 19 pounds goes into the manufacture of jams, candy, and beer, much of which is exported.

The question of the sugar supply is important to Great Britain because of her big jam trade. She has the reputation all over the world of making the best jam and marmalade, and these profitable exports will be lost unless she can get cheap sugar.

It was, as we see, sugar that made the first breach in England's free trade policy which was almost a religion to her. And sugar everywhere plays an important part in tariff controversies. It is the best thing to argue about in a free trade-tariff controversy, for it is a clear case and brings out the best points in both positions. Here we have a single and identical commodity produced in both tropical and temperate zones in direct competition. The tropics have the advantage in yield. In Java and Hawaii $4\frac{1}{2}$ tons of sugar can be got from an acre of cane. In continental Europe $1\frac{1}{2}$ to $1\frac{3}{4}$ tons of sugar can be got from one acre of beets. In the United

States only about one ton per acre is obtained. Shall we then give up the attempt to compete with the freer growing cane in the hotter, wetter climes?

But then there is the human element. Suppose we balance a sugar beet community, such as we know it in Colorado or California or Nebraska, its high standard of living and its conditions or work, against a Cuban plantation worked by a type of labor not much above peonage. Shall we not favor our own sort and maintain our economic independence by protecting our beet sugar industry?

But, it may be answered, we are not independent of cane sugar grown overseas. We still have to import three quarters of our sugar supply in spite of our thriving beet sugar industry. Shall we exclude this by an embargo and grow all our sugar within the limits of continental United States? If so, will not the price be so high as to cut down consumption? And will not the land have to be taken from some more profitable crop? Shall we solve the problem by annexing more tropical territories, and if we do, shall we treat them as ourselves? Shall we admit their sugar free in competition with our home-grown beet sugar?

Assuming that we can never, even with the aid of protection, grow all of the sugar we need, shall we run to the other extreme? Shall we throw down all the tariff wall altogether at this point and grow none of it? Is there any advantage in a compromise policy such as we now have? Or taking the question from a world point of view instead of that of national policy, here is a big thriving industry, the fixation of solar energy in the temperate zone by means of the beet. It has been built up by scientific methods and with the aid of tariff duties and subsidies. It has become so powerful and important as to overthrow free-trade in every country. Should it be now abandoned and left to perish? Was it a mistake to build up the beet-sugar industry at all?

I am not attempting to convince you or to present my own view or opinion on the subject, if I have one. I am merely suggesting the arguments on both sides because here is a question where the usual subterfuges and evasions common in tariff controversies can be swept away and the real issue laid bare. To get away from selfish nationalism, imagine yourself autocrat of the whole world, interested only in the development of the highest possible civilization and greatest prosperity in the future without regard to the particular interests of any country or race? Would you do away with all commercial and political boundaries? Would you permit complete freedom of movement of persons and goods everywhere? If not, what fences would you set up, where and why?

The sugar question is important to think about because it involves the principles that will have to be applied in innumerable other cases in the future. For the effect of science is to short-circuit time and space, to bring all parts of the world and peoples closer together and therefore into competition with one another.

II

MORE than that, science shows the possibility of solving a problem in more than one way. To take the case in hand, when sugar was obtainable only from the cane and the cane could only be grown in the tropics, then the powers had no choice but to compete, and so they fought for the Indies. But when science had developed the beet to where it was richer than the cane in sugar, then the German peasant came into competition with the Dominican Negro. The former won. The most intelligent and highest paid labor using scientific methods and power will run out the cheapest land labor. When guano was the only concentrated nitrogen fertilizer, then there was a struggle for the bird islands. But now nitrogen salts can be made in half a dozen different ways and in any country that has electric power. The smallest country has just as much of the raw material for ammonium nitrate as the largest, for the raw material is the air. When indigo could only be made from the indigo plant, India had a monopoly, but now that it is made from coal-tar any country that can get coal can make indigo. If railroad men strike we can use autos. If gasolene fails we can use alcohol. And finally and most important of all is the question of motive power. We can pool our forms of energy in the electric current. Big waterfalls and little waterfalls, steam engines and gasolene engines, tidemills and windmills, every source of energy in a given territory might be connected so as to contribute its quota to a common fund or reservoir of electric

power from which any one might draw what he needs and whenever he needs it.

The object of this series of articles is to show how any particular scientific discovery or invention will influence our life and thought in various ways. I selected the five subjects for this series without any regard to their relations to each other, choosing such in fact as lie in very different fields: Gasolene, a new motor fuel; Coal-Tar Compounds, a group of dyes and drugs from a single source; Photography a picture process; Refrigeration, the new method of controlling cold; and, Sugar, a food product. I have tried to show the effect of these things on industry, politics, everyday life, the forms of art, and the development of opinion, and forms of philosophy.

But if each of these has a widespread influence upon the world, they must have effects upon each other, and it is interesting to trace some obvious results of such reciprocal action.

Gasolene, for instance, is extensively used as a solvent for various coal-tar compounds and, on the other hand, the distillation of coal-tar produces benzene, which is coming into use as a partial substitute for gasolene in motor engines. Gasolene propels the automobiles and runs the movie machines that are reaching the most rural districts in university extension work, and photography furnishes the aviator with the power of procuring instantaneous and imperishable records of the scenes that he passes over. Gasolene is used for running all sorts of machinery in connection with the refrigeration business and, on the other hand, cooling down the natural gas as it comes from the wells, has given us a much needed addition to our failing supply of gasolene. Gasolene-propelled tractors are used in the cultivation of the sugar crop and trucks in conveying the beets or cane to the central factory, while, conversely, the alcohol produced by the fermentation of sugar is beginning to replace gasolene as a motor fuel.

The alcohol from sugar forms a component of a large number of coal-tar compounds. Coal-tar returns the compliment by producing saccharine which is a substitute for sugar so far as sweetness is concerned. The coal-tar preservatives are extensively used for keeping meat instead of refrigeration and the coal-tar colors and flavors are used in our cooled drinks. On the other hand, refrigeration is an essential part of the process of obtaining from the air the nitrogen, which, in the form of nitric acid and ammonia, is used in the manufacture of numerous coal-tar compounds. Developers from coal-tar are used in photography, and the microscopic slides of tissues and disease germs, stained by coal tar dyes, are photographed for comparison and enlargement.

Photography provides beautiful pictures of the advertisements that invite us to buy more sugar and candy than we ought to eat, and as for the reciprocal influence of sugar upon photography—well, I suppose photographers eat sugar the same as the rest of us. The gelatine-covered plates used for making negatives are ripened by keeping in cold storage and, on the other hand, photography contributes to the means of inspection of meats and other products kept it cold storage. Refrigeration has opened up the tropics. Sugar is extensively used for preserving fruit in rivalry to refrigeration.

SCIENTIFIC INTERDEPENDENCE

WE COULD discover many other instances of reciprocal influence, and, doubtless, some more important. But these are sufficient to show that the influence of any new factor in civilization is not measured by its direct effects, but that it also works in combination with other new factors. It is important to appreciate this because the acceleration of modern progress is due to the fact that each new idea or invention acts not only by its own force, but by coöperation with other ideas exerts more influence upon society than the two factors considered singly. The effects are multiplicative rather than additive. That is to say, if a scientific discovery produces a certain effect, another scientific discovery of not greater intrinsic importance will not only produce a similar effect, but in combination with the first may produce four times the effect of either of the two alone. Three may produce nine times the effect of one, four produce sixteen times the effect, and five produce twenty-five times as much as each alone. It fact, no formula can measure it, for the reciprocal effect of simultaneous scientific discovery may be immensely greater than any such simple mathematical product. New forms of science are appearing now as sports, resulting from the cross fertilization of the older civilization.

Notice that the revolutions of science are achieved without the use of arms or argument. Here we see cases where millions of people are affected and the course of history altered yet neither force nor propaganda is employed.

The scientist does not have to persuade or convince anybody. He either has discovered something or he has not. In either case his talking about it will make little difference. There is comparatively little debate nowadays in scientific circles over scientific questions, nothing like the time taken up by controversy in politics, theology, art, or literature. What discussion there is among scientists is mostly over modes of interpretation or rivalry in priority or the policy of the profession.

When Professor Röentgen discovered the X-rays he did not have to found an "International Society for the Conversion of the World to the Idea of the X-Rays." He did not have to raise an endowment fund and hire a salaried staff, organize a corps of local organizers, and publish a weekly organ. No, he simply announced his discovery in a modest paper that you can read in ten minutes, not a word of argument in it, no rhetoric. He did not have to convert anybody, not even his wife, but in a few months every laboratory in the world was taking X-ray photographs. Yet the X-ray has really accomplished more in the world than many a reform movement that makes a great noise and requires tremendous effort.

Of course when it comes to getting the people to take up a new invention then propaganda on the most lavish scale is necessary. But this takes the form of advertising and is paid for by those who profit by the sale of particular forms of the invention. To get millions of people to buy cameras and candy, dyes and automobiles, takes lots of money and skillful methods, but this pays for itself as it goes; it does not have to be promoted by altruistic motives.

To sum up, the main effect of the five inventions that I have been discussing as well as other applications of science is to increase the power of man over the material and forces of nature. The method of science is economy of thought. The aim of science is control of the future. Science shows how these new forces can be acquired and managed and what benefits can be derived from their employment. But science has no authority to ensure that the world will make the proper use of its gifts. Men may employ them for their own destruction. In fact they do.

For instance, science makes picric acid from coal-tar, but whether picric acid shall be used to blow men to pieces or to heal their burns depends upon how far the moral nature of man has developed. That alcohol can be made by fermentation and distillation was the discovery of a medieval Arab chemist, but we should not blame Chemistry for the improper use of alcohol. Science provides gasolene but cannot say whether it shall be used to run the car of a bootlegger or of a doctor.

In short, science provides the motive power, but not the motive for the use of power. Consequently the scientist should not be blamed when we see his well intended and valuable discoveries employed to increase the misery of the world instead of alleviating it.

Napoleon said:

"The true conquests, the only conquests that cost no regrets, are those achieved over ignorance."

But like territorial conquests the conquests over ignorance may curse the conquerors if they are improperly employed. That, however, is not the concern of the scientist as such, although as a citizen he may have something to say.

But we must not stop the advance of knowledge for fear of the consequences. In the warfare of man with nature there is no truce. Unless man can turn the forces to his own advantage he will be crushed by them. Unless man can establish his supremacy and superiority over the world of nature he will sink again to the level of the brute from which he has risen. As Matthew Arnold puts it in his

SONNET TO AN INDEPENDENT PREACHER

"Know, man hath all which Nature hath, but more,
And in that *more* lies all his hopes of good.
Nature is cruel, man is sick of blood;
Nature is stubborn, man would fain adore:
Nature is fickle, man hath need of rest;
Nature forgives no debt, and fears no grave;
Man would be mild, and with safe conscience blest.
Man must begin, know this, where Nature ends:
Nature and man can never be fast friends.
Fool, if thou can'st not pass her, rest her slave."

FREEDOM IN SCHOOL AND CHURCH

By WILLIAM H. P. FAUNCE

THE recent enforced retirement, without a trial, of a Methodist preacher because of his "modern" preaching, and the recent attempt of a Philadelphia presbytery to unseat the most widely known preacher of New York City for a similar reason compel thoughtful Americans to face a grave problem. The writer holds no brief for either of these men. It may be that the Methodist preacher has emphasized his negations needlessly, and wounded his former friends. It may be that the distinguished occupant of the Presbyterian pulpit, whose writings have inspired millions of readers, might have phrased one paragraph with clearer recognition that milk must be fed to babes. The question is far beyond the merits or the wisdom of any individual.

The question is this: Is American Christianity strong enough to include, as does the Bible, various types of personality and various modes of thinking, or is it a one-track affair which excludes all minds that do not run in a single groove? Is the American church to be broad and deep enough to guide the conscience of a hundred million people, or is it to be a group of petty sects, controlled by literalists, excluding all germinating ideas and forward-looking minds?

The World War has accentuated all our differences. It has not created those differences, but it has revealed and emphasized them. During the War men and nations were held together by a great fear and by the intense loyalties of a crisis. The crisis being over, men and nations fall apart—all the farther apart because of the artificial unity of sudden danger. Hence we see the new conflicts of Socialism and Capitalism, the deepening opposition of Cross and Crescent, the recrudescence of suspicion between Catholic and Protestant, between Jew and Gentile, between native and alien, and the strange revival of that clandestine society which organizes the chief antipathies of our time into a menace of hood and mask. By extravagant emphasis on inevitable diversities of temperament and formula, we are in danger of forgetting the underlying unities on which depend both state and church.

The most surprising of these cleavages is that revealed by the growth of so-called "Fundamentalism" in America. Such a growth would be impossible in Great Britain, where religious thought long ago achieved a *modus vivendi* with science and history. We thought that forty years ago in America religion had been adjusted to the evolutionary theory, as it was adjusted in the Sixteenth Century to the far more startling Copernican theory. We thought that science had definitely yielded a large place to the unseen and intangible, and had agreed to Goethe's saying that "the universe divided by reason leaves a remainder." We thought that forty years ago it was established that the Bible was not a text-book of science—any more than is Pilgrim's Progress or John Wesley's Journal. Now, to the amazement of the whole world a large number of sincere enthusiasts are proclaiming that human progress is a delusion, that the ultimate catastrophe is close at hand, that all human institutions—home, school, state, and church—are soon to disappear, that the worse the world gets, the more reason we have to hope and are basing their pessimistic and non-coöperative attitude on the baldly literal interpretation of a few of the obscurest texts in the Bible.

What this recrudescence of medieval despair may do to the denominational colleges in some sections of our country is becoming clear. In one college a new professor happened in his first lecture casually to use the terrifying word "evolution." Whereupon the whole class hissed him, and later explained apologetically that they had been taught that evolution and atheism are synonymous. In some colleges the control of teaching has been taken out of the hands of trustees and faculty and lodged in an annual mass meeting. But it is precisely the mass which needs to be educated, and so is disqualified to direct education. In other colleges the teachers are cowed and silent because of the attacks of local publications which demand that all

teachers repeat the shibboleths of a former generation or retire. The failure of the Kentucky legislature by a single vote to pass a law banishing modern science from the schools of that State, and the presentation of a similar bill in the legislature of Minnesota, show how fast and how far has gone the propaganda in favor of the world-view held in the Sixteenth Century. Political freedom has been achieved by whole nations and races since 1914. But freedom of teaching, liberty to declare the facts of history and biology and anthropology, as they are known to the foremost scholars in each department, is now threatened in the name of the religion which declares: "The truth shall make you free."

NECESSARY RESULTS OF THE MASS MEETING

THE college which surrenders to the control of the mass meeting not only is unworthy of the confidence of the public, but utterly fails to prepare its students to face the realities of life. Sooner or later those students must meet the facts—in the popular pages of Wells and Van Loon, if not in the authoritative volumes of Thomson and Bateson and Osborne. A college which should still teach the science of ancient Israel might fittingly call to its chair of astronomy "Uncle Jasper" or make Dowie and Voliva professors of geology and history.

The colleges, however, will not permanently yield to obscurantism and reaction. Their roots are deep in the American principle, and all of them are striving to be true to the ideal embodied in 1764 in the charter of Brown University: "Into this liberal and catholic institution shall never be admitted any religious tests, but on the contrary all the members hereof shall forever enjoy full, free, absolute, and uninterrupted liberty of conscience." It is the churches, necessarily local in constituency, without endowment, served by rapidly changing preachers, affected instantly by popular demand, that most clearly face a crisis.

The American Association for the Advancement of Science, representing over a thousand of the leading scholars of America, has just declared its undeviating belief in evolution as the method by which the world as we know it acquired its present form. Probably every teacher of physical science in every college or high school in the northern states agrees with this declaration of the American Association for the Advancement of Science. Every boy or girl attending a high school north of Mason and Dixon's line is now being taught some form of the doctrine of evolution. The competent teachers of America and Europe are practically agreed that the physical world as we see it is a growth from simpler forms into more complex, and that so far as man is physical—of course he is vastly more!—he, too, is the result of growth from the simplest forms of life to the brain of an Aristotle and the heart of a Florence Nightingale.

EVOLUTION

THESE scholars do not affirm Darwinism or any other "ism." They are quite ready to acknowledge that Darwin overemphasized the struggle for existence in the organic world and that exaggerations and perversions of "natural selection" have given an excuse to imperialists, to exploiters of the weak, and to a pagan ethic which is all too prevalent. But perverse inferences do not disturb the fact. The fact is that the law of evolution—a doctrine as old as the Roman poet Lucretius, and the New Testament declaration of "first the blade, then the ear, then the full corn in the ear"—is now as firmly established among scholars as the law of gravitation. Both of these laws are merely statements of how matter moves and how it assumed its present forms. Neither law sheds any light on ultimate causes or affects the conviction of the church: "In the beginning God." Neither law can be proved. Each is an hypothesis—a "guess," if one prefers to call it so, only remembering it was by guess that Columbus discovered America and that all the advances in human knowledge have been made. Both gravitation and evolution are hypotheses—modes of thinking, ways of explaining the facts—and will be cast aside the moment some better explanation can be found. (Einstein is to-day questioning the adequacy of the theory of gravitation.) Both are consistent with Christianity or Buddhism or atheism; neither has anything to do with the truth or falsity of any religion. Whether gravitation attracts inversely as the square of the distance, or not; whether species were created *instanter*, as coins are stamped in the mint, or were created by process, as a gardener grows roses—that has nothing to do with the great fundamentals of religion: "Thou shalt

love the Lord thy God with all thy heart and thy neighbor as thyself."

Indeed the doctrine of evolution, rightly understood and interpreted, is to-day one of the most powerful aids to religious faith. It has delivered thousands from perplexity amounting to despair. It has supplanted the old paralyzing conception of a "world-machine," a world mechanical and lifeless, grinding out human destiny without end. In place of that soulless mechanism we now have a growing organism. In the words of John Fiske, "The simile of the watch has been replaced by the simile of the flower." A developing world, still in the process, ceaselessly unfolding, still to be shaped by human purpose and effort—that is the inspiring conception now placed in the hands of the church by modern science, a conception which formed the basis of the first Christian parable of "The Sower." Science is not yet able to discern a world-soul or a creator; it leaves that to religion. It has nothing to say about the purpose and goal of life or the spiritual presence in all things, which is the vital breath of religion. But it has shown us a universe alive, progressing, climbing with many backward steps toward "one far off divine event." The doctrine of development has cleared away most of the difficulties in Old Testament ethics, and enabled us to reconcile teachings which, given in different centuries, are yet united in one book. It has furnished the church with a powerful apologetic, which many of our leaders are now using.

EVOLUTION AND RELIGION

DR. W. W. KEEN, the noted surgeon, in his last book entitled "I Believe in God and in Evolution" has brilliantly assembled the facts and then declared: "The attitude of the church and especially of the clergy toward science and toward the origin of man is of incalculable importance. . . . There is serious danger, if present tendencies triumph, that intelligent people—those who eventually mould the thought of the world—will be alienated from the church and finally driven out of it." Dr. S. P. Cadman of Brooklyn, a staunch preacher of the "faith once delivered," affirms: "Of all the theories science has put forth, that of evolution was the most capable of being reconciled with Revelation. . . . Renewal, growth, fertility, contingent perfectibility; what are these but spiritual terms imported into the natural world? Terms with which the New Testament abounds at every turn."

Science, we must admit, has at times been quite as dogmatic as theology. Professor Huxley in the great debates of the last generation spoke *ex cathedra* as truly as did the English bishops, and held tenaciously to some positions which his successors no longer maintain. What President Andrew D. White called the "conflict of science and theology" is really a conflict between the open mind and the closed mind in both theology and science. The dogmatists are to be found both in the pulpit and in the laboratory, and the men who believe "that the universe is fire-proof and it is quite safe to strike a match," the men who believe that the truth cannot lead away from the Truth, are to be found both in church and college. Jonathan Edwards was no more sure of the damnation of non-elect infants than was Ernst Haeckel of his own atheistic inferences; while Phillips Brooks and Lord Kelvin were equally clothed with humility and girded with courage. The so-called "conflict" goes steadily on in every church and in every scientific association—the conflict between two types of mind, the conflict between those whose supreme concern is to conserve the hard-won gains of our fathers and those whose supreme desire is to enlarge the bounds of knowledge and life for our children. Copernicus and Columbus were opposed by the science of their generation as militantly as by the current theology, and they were pelted with passages from Aristotle as freely as with texts from Genesis and Isaiah.

SCIENCE AS A DEFENSE FOR RELIGION

BUT now the church fails to realize that science is offering to religion theories which may be so interpreted as to afford a powerful defense of the fundamentals in Christianity. The pulpit should eagerly welcome such aid. Science is year by year dissolving matter into more subtle and spiritual forms. It resolves the opaque mass of a bar of steel first into molecules, then into atoms, then into electrons or fields of force, and shows us all known forces as probable forms of one eternal energy.

And in the modern form of the ancient theory of evolution we have been offered a key to the universe which unlocks more chambers than any other key yet discovered.

Of course, evolution cannot explain the ultimate cause of anything. It can simply tell us how things came into their present form. On my table are some chrysanthemums cut out of bright orange-colored paper, and beside them a few weeks ago were some genuine chrysanthemums developed by careful gardeners through decades or centuries of experiment. Will any one believe that the paper flowers, cut out and pasted together in a few minutes, are more divine, or more worthy of their human maker than the real blossoms that are the result of evolution under expert guidance? But if the story of man on the earth shows that he, too, was not put together in an instant, but was gradually grown; that the human race, like each man in the race, slowly assumed its present physical form, its institutions, laws, customs and manners—if that be true, as every man of science affirms, is the church to stand terrified and cry: "They have taken away my Lord?"

Rightly understood, this doctrine brings back the divine into the daily and hourly changes of the physical world and gives us such a vision of the spiritual element in human life as the world never had before. The divine is no longer as far distant as 4004 B.C.—according to the childlike chronology of Usher—but is at work in every "flower in the crannied wall." The divine is seen in the early crudities of ethics and religion, just as architecture began with the tents of early wandering tribes, and the music of the harp and piano began with a cord stretched across a seashell. We can now understand how the lie of Abraham and the adultery of David did not hinder their being the moral leaders of their time. We can understand how the slaughter of the Canaanites with every circumstance of modern Prussian atrocity was "commanded" by God. We are no longer troubled by the contradictions between the ethics of the Mosaic law and that of the Sermon on the Mount. We are undisturbed by any documentary theories of ancient composition and undismayed by any digging in Egyptian sands. We have found the clue—or at least a clue—to the whole unfolding panorama of history, and it proves to be the method of the best pedagogy of our generation and the method foreshadowed by the prophet Hosea: "When Israel was a child, I took him by the arms and taught him how to walk."

To refuse stubbornly such aid and to set the church against it, is to repeat the old error which declared Copernicus wrong because God "hath laid the foundations of the earth," and Galileo wrong because "He maketh his sun to rise," and Columbus wrong because the Bible speaks of the "corners of the earth."

THE SPIRITUAL INTERPRETATION

BUT the literalists, curiously enough, reject the theory which so easily lends itself to spiritual interpretation and insist that the Creator did not grow things but made them by fiat. As if creation in a moment were more divine than creation by the increments of a million years! Then to protect Christianity from modern thought and thinkers they have announced a new set of "fundamentals," among which they enumerate the Virgin birth, the Deity of Christ and a substitutionary atonement, the inerrancy of the scriptures in science and history as well as in religion, and the imminent physical return of the Lord on the literal clouds in the sky. The question as to the nature of Christ and His death is not directly related to the teaching of science and need not be discussed here. But science and religion do come into touch the moment men affirm that the church must believe in a scientifically inerrant Bible, in the Virgin birth, and in an imminent physical catastrophe which shall wind up all human history. To the first Apostles of the Christian faith such things were never the fundamentals of Christianity. The writers of the New Testament never ascribe inerrancy to the Old Testament, but on the contrary often pronounce its teaching defective and preparatory to something better. The Virgin birth, which is related with noble reticence and reverence in two New Testament passages and which has for centuries been accepted by the great majority of the church, is not mentioned in any of the New Testament epistles or in any of the apostolic sermons recorded in the Book of Acts. It apparently formed no part of the preaching of the twelve apostles or the seventy disciples. If that miracle was not considered fundamental in the days of the apostles, can it be made so to-day? But the Fundamentalists affirm that belief in a miraculously inerrant Bible, in a physiological miracle in Bethlehem, and a physical miracle soon to occur in the sky, that these beliefs are

the fundamental things in Christianity—which is not only a transformation of the early faith but a palpable inversion of moral values.

To scoff at such beliefs, often held by sincere and noble men who have achieved noble and sacrificial lives, would betray a narrowness quite unworthy of religious men. A cheap and easy skepticism has no healing for the woes of civilization. The "spirit that denies" cannot rescue the broken world from its disillusion and despair. The so-called liberals have sometimes indulged in a scornful treatment of beliefs which have given to millions a victory over pain and grief and evil, and by such an attitude have strengthened reactionary orthodoxy. Only great beliefs can be the foundation of great character. Only a positive faith can speak with authority and bring us permanent help. But positive faith must deal with the main truths of religion, not with man-made formulas invented long after the event. We are not here concerned with the truth or falsity of any statement in any creed. We are concerned simply to keep the church as broad as it was at its founding, and especially to save it from a subtle materialism concealed in the garb of piety. To despair of all spiritual progress, to hold that the only hope of the world is in a physical convulsion and the setting up of a physical throne in a literal Jerusalem defended by physical force—that is to sink into a materialism as lamentable as that of Haeckel. Those who hold to such a purely physical solution of the world's spiritual problem little realize how completely they have surrendered the early and victorious faith.

THE STRUGGLE TO BELIEVE

LITTLE also do they realize the harm they are doing to the struggling faith of the young men and women of America. Tens of thousands brought up in Christian homes are struggling to keep the faith of Galilee amid the larger horizons of America. They are sincerely desirous to maintain Christianity while gaining education. They attend the church on Sunday and on Monday visit the Museum of Natural History where they see vividly pictured at the expense of the city the slow ascent of man from the simplest forms of animal life. They read their Bibles and then find in every public library the four superb volumes of the recently published "Outline of Science" by Professor J. Arthur Thomson, who declares: "No idea has been so powerful a tool in the fashioning of New Knowledge as this simple but profound idea of Evolution, that the present is the child of the past and the parent of the future." And to these young people the Fundamentalist presents the dread alternative: "Science or the Bible—you cannot believe both." Then mind and heart are rent asunder and faith is often wrecked beyond repair.

Yet wise men will not seek to exclude any Fundamentalist from church fellowship. He is mistaken; he is undermining the faith of thousands; but he is sincerely wrong, and hence on the way to become right. He needs not violent objurgation, nor condescending pity, but simply continuous education. He needs to realize that there "is more light yet to break out of the Word," that no physical demonstration has done or can do the chaotic world any permanent good; and that belief in a spiritual religion means reliance solely on spiritual forces for the setting up of the Kingdom of Heaven. In that Kingdom men shall come from the north and the south and the east and the west; from the analytic reasoning of the north and the fervent loyalty of the south, from the brooding meditation of the east and the restless action of the west. In that Kingdom men shall achieve not only tolerance, but liberty. Whoever has entered that invisible Kingdom has the right to a place in the visible church.

Here then is the immediate task of religion. In a world suddenly expanded beyond the wildest dreams of men, a world which is dissolving the atom and measuring the diameter of Betelguese, which is digging up the Pharoahs from Egyptian sands and exploring the footprints of the dinosaur, a world which is seeing all time and space unrolled as in a gigantic moving picture—in such a world the church must listen again to the ancient injunction: "Be ye also enlarged." No formula or set of formulas can exhaust the truth. The need of the world is too urgent, too desperate, for good men to stand asunder. We must include in our association both our "contemporary ancestors" and the audacious prophets of to-morrow. Behind all the formulas stands the one basis of fellowship: "Whoever shall do the will of God, the same is my brother and sister and mother."

KEEPING WELL

The Necessity and the Desirability of Keeping Ourselves Free of Germs. Simple Suggestions for Keeping Fit. Community Aids to Health, and the Importance of Good Food and Pure Water

By FLOYD W. PARSONS

ONE great problem of to-day is how to save the energy that is stored in the bodies of the nation's workers; how to prevent our people from becoming old and exhausted before all their power has been applied to some useful purpose. Notwithstanding that more words of advice have been written on the subject of health preservation than on any other, it is a question that never grows old and that does not suffer overmuch through repetition.

The fundamental fact underlying preventive medicine is the healthy individual. Man is affected by his surroundings, by the accidents of life, and by the different forms of disease; however, it is his own body, with its growth and development, its resistant soil, its natural powers of defense, which forms the basis of health and scientific prevention of disease. Notwithstanding the health campaigns that have been preached at us from the pulpit and the press, countless intelligent persons still neglect the simplest and most elementary rules of healthful living.

Though the general death rate in the United States has declined in recent years, the death rate from organic diseases has increased steadily since 1880. In infancy, childhood and early adult life, the record is better, but vital statistics indicate a decline in the "expectancy of life" from 40 years on. The mortality rate from several of the more common organic diseases has practically doubled during the past 30 years. Most of the diseases that are on the increase are those that might be termed "diseases of degeneration." They involve the kidneys, heart, and blood vessels in the main, and are most common among people engaged in sedentary occupations.

Fewer people are employed at manual labor, due to the substitution of machines for men, and it is a well known fact that workers in the sedentary occupations require less physical and more nervous energy. The waste products that should be eliminated through the skin and lungs by means of physical exercise overload the kidneys, and these organs as a consequence fail to function properly. The muscles used in hard physical work tend to assist the circulation of the blood. Furthermore, brain work cannot burn up food poisons as physical exertion does, and these poisons overload the arteries and render them weak and brittle. The heart muscles become flabby and are weakened by the same cause.

While science, invention, and engineering skill are making it possible for us to maintain production with less physical effort than was necessary heretofore, we shall pay heavily for this boon unless we substitute a moderate amount of daily exercise for the manual work previously performed. City life creates a drain on our nervous energy and conduces to an existence of physical ease. Twenty-nine men out of every thirty who applied for admission to the Marine Corps from the Manhattan District of New York City were rejected because of physical defects. Our rural population has increased only 11 per cent. during the last decade, while our urban population has increased 35 per cent.

The yearly consumption of patent medicines has increased more than 300 per cent. a person in 30 years; in fact, statistics show that here in the United States alone the population consumes approximately 80,000,000 pounds of drugs annually, most of which are taken without a physician's advice. One investigator found that the annual demand for drugs and patent medicines is so great here in the United States that a freight train extending from New York to Washington could carry only two-thirds of such concoctions that enter the human system every year. A large proportion of this freightage consists of patent medicines, which contain the slave-habit

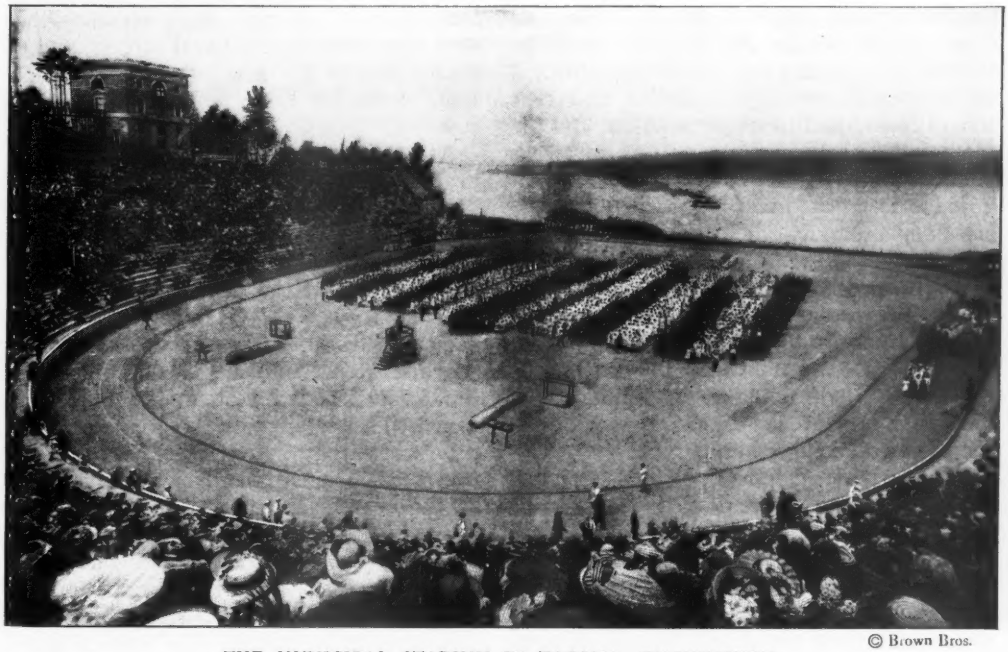
drugs of opium, laudanum, morphine, and chloral, as well as alcohol; and the results of the wide sale of such medicines is the fastening on the people of drug habits which, once started, can never be thrown off. There are now in the United States an appalling number of victims of these narcotic drugs, and many new victims are being added every year. Thus in the effort to obtain relief from the illness due to the forced use of inferior and adulterated foods, people seek the help of medicines, only to find themselves becoming slaves to habits that are worse than death.

While our general death rate has shown a material decrease in recent years, it is estimated, nevertheless, that 600,000 deaths occur annually in the United States which might have been prevented. The resulting waste from this avoidable illness and death amounts to more than $1,000,000,000 every twelve months. Though possessed of far superior intelligence, man has less defense against disease than the lower animals. Along with mental development has come deterioration of various important senses that help animals in self-protection.

It is claimed that the human race is now losing an average of 15 years of life through lack of the use of readily obtainable knowledge concerning health and disease. Bacteria are the agents of disease. Several methods of defense may be used against them. Many varieties of bacteria cannot live in sunlight, and high heat will kill all forms of germ life. This is the reason the surgeon cleanses his instruments by boiling.

Disease germs may also be destroyed by chemicals in the form of liquids or gases. Formalin is an admirable disinfectant. Lime, either in the form of chloride or quicklime, is also a satisfactory destroyer of bacteria. It should be freshly prepared when used on feces, sewage, and garbage. Alcohol is a good agent, for it can be used on the skin without injury to the tissues. The disinfecting power of most fumigating gases is slight. Formaldehyde gas is one of the most efficient fumigators. It should be used at a temperature of 65 degrees or higher, and with an initial humidity of 65 per cent.

Bacteria may also be destroyed by indirect methods which deny them entrance to the normal habitats where they multiply rapidly. The introduction of individual drinking cups has reduced the spread of disease. There is now a growing movement to educate the



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THE MUNICIPAL STADIUM IN TACOMA, WASHINGTON

Cities have come to realize that playgrounds for their people are highly important. Golf links, stadiums, swimming pools, beaches, et cetera, are to be found in many cities, and city parks are almost universal

AN ATHLETIC FIELD FOR THE EMPLOYEES OF A LARGE STORE

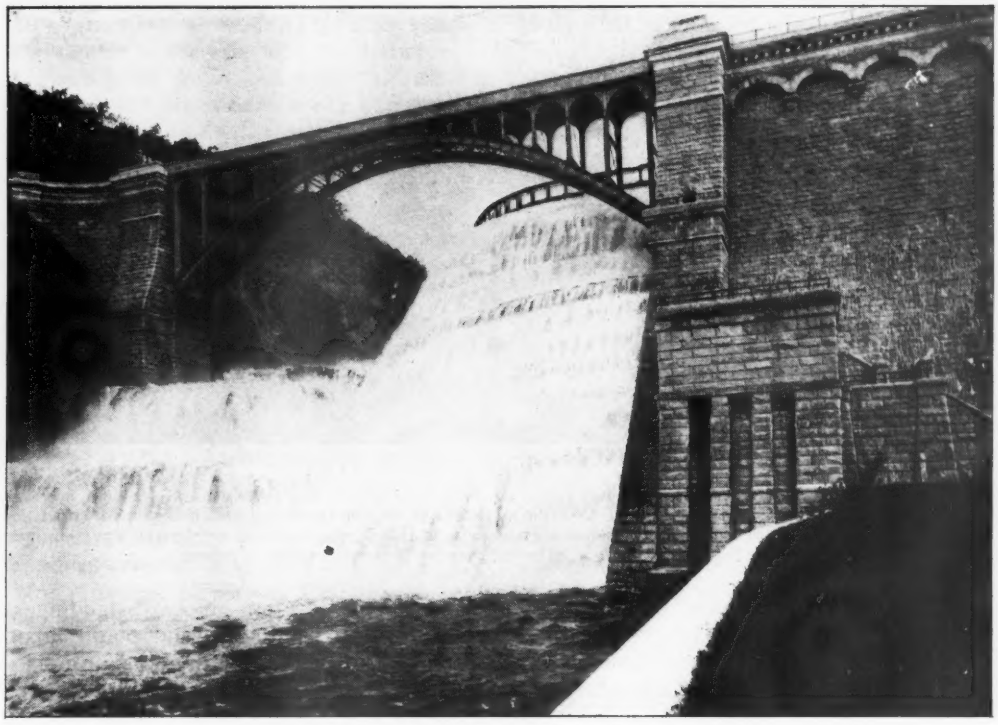
This field is for the employees of Sears, Roebuck & Company, of Chicago. Exercise is particularly necessary for those whose lives are sedentary. Office employees are given opportunities to secure exercise by many progressive firms

public to use gauze or paper, which is later burned, instead of handkerchiefs, to receive nasal discharges from people who are ill. Much sickness has resulted from the failure in many households to boil all bed and body clothes, napkins, and the like. In a home where someone is suffering from a contagious disease, all dishes should be boiled; useless articles in the sickroom should be burned; all other articles which will stand it should be treated by heat, and the room later subjected to gaseous disinfection. Carpets and rugs shoudl be exposed to strong sunlight, and the room itself should be opened as much as possible to sun and air.

There is much discussion concerning vaccination, and a great deal of opposition to the practice, but no matter what one's personal opinions may be, the use of preventive serum is becoming more prevalent each year, and statistics appear to prove that this method of treatment has its benefits. Vaccination merely consists in giving the individual a mild form of the threatened disease, thus affording the person an acquired immunity.

The story of smallpox is one of the greatest lessons in disease prevention that lies before us. A century ago this illness was the terror of mankind. In certain communites in Europe, smallpox left only seven in every hundred unharmed. In America whole tribes of Indians were wiped out by the disease. The Revolutionary armies at Cambridge and Valley Forge were ravaged. Then an English physician observed that milkmaids were rarely attacked by smallpox, and the idea occurred to him that perhaps infection with cowpox protected these dairy people from the more dangerous disease. Following out this idea the doctor vaccinated a boy of eight with cowpox virus, and then exposed the boy to actual smallpox infection, but the lad did not contract the disease. Others were then treated with equal success, and the doctor named his new principle "vaccination," from the Latin word, *vacca*, meaning cow.

At the time of this experiment, eighteen deaths out of every hundred in London were due to smallpox. Ten years later the figure was six, and in another decade it had dropped to three. Then compulsory vaccination was introduced, and the death rate dropped to nine in 100,000. It is now about one in 100,000. But several times after vaccination was discovered, serious epidemics of smallpox broke out, and investigation showed the world the necessity for re-vaccination. We now know that in order to be completely protected against smallpox, every person should be vaccinated once in infancy, again at about the age of twelve, and during every epidemic. This is worth thinking about, for in a recent year here in the United States our Public Health Service reported 21,767 smallpox cases in 29 states. The medical fraternity insists that if we do not rigidly enforce the practice of vaccination and re-vaccination



PURE WATER IS AS IMPORTANT AS PURE FOOD

This is the new Croton Dam, a part of the New York City water system. The latest method of eliminating disease germs from city water supplies costs about three cents a year for each person supplied with water. Impure water is likely to cause typhoid epidemics, but the trifling cost of the best purification system is such that nearly every city and town uses it

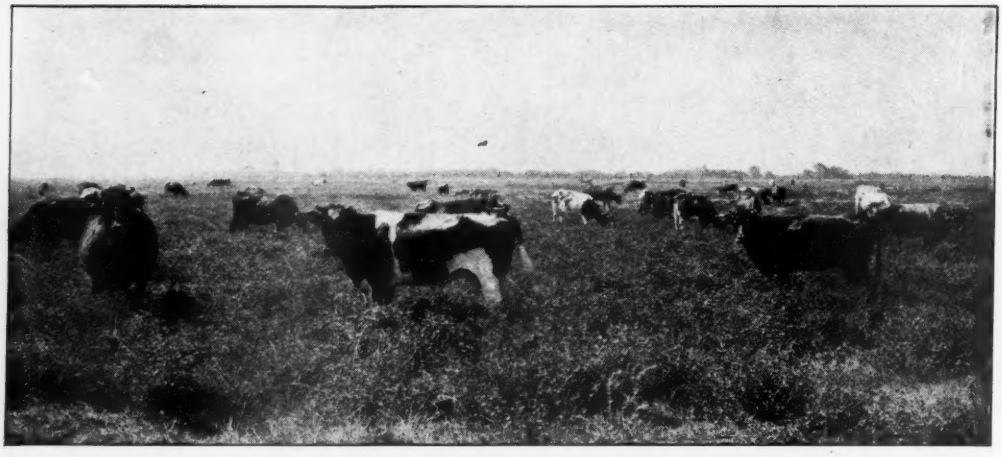
we may at any moment suffer from a severe epidemic.

Pages might be written without doing more than scratch the surface of the subject of preventive medicine. It is possible, however, to set forth a few helpful rules that are sure to be of benefit. No human ailment causes a greater loss of time and money than the common cold. The correction of abnormalities of the nose and throat frequently rids a person of the tendency to colds. Other common causes of colds are constipation, vitiated air, dust, drafts, sudden changes of temperature, overwork, loss of sleep, improper food, exposure, and worry. In fact, anything that weakens bodily resistance renders a person vulnerable to colds. Nevertheless, the actual cause of a cold is always bacteria. It is altogether possible that some day we will quarantine for ordinary colds just as we do for measles and other forms of illness.

Scrupulous care in a household is as important as Federal or state inspection. Parasites are killed by proper cooking. The average person requires from two to four quarts of water a day. This includes the amount that is taken in fruits, vegetables and other foods. The old idea that water is harmful when taken with each meal has been generally disproved. Constipation is frequently due to too little water.

All windows should be opened wide before using the room in which one works. One window should be kept open at the top and one at the bottom. A draft may easily be prevented by the use of a window board. Loose clothing is best, and during cold weather it is advisable to depend upon overcoats for additional warmth outdoors, rather than heavy-weight underclothing. Tight hats conduce to baldness by cutting off the blood supply from the skin of the head.

Stand, sit, and walk erect; constipation is induced by a slouching position. Overwork lowers resistance. Keep away from crowds when you are tired, especially in time of a



A HERD ON A MODERN DAIRY FARM

Milk and milk products, unless care is taken with them, are likely to be prolific sources of disease. Seldom, however, do our milk supplies cause trouble, for modern, scientific methods quickly detect any suggestion of germs or impurities. The inspection system is also applied to other foods, and we are guarded from disease in a thousand ways—in meat packing houses, restaurants, bakeries, canning factories, and many others

disease epidemic. Boil water when there is any doubt of its purity. Bacteria lurk under fingernails, and the washing of hands with a brush before meals is essential in disease prevention.

The state of the mind always affects the body for good or ill. A certain amount of play is an important factor in health preservation. The optimist has a better chance for health than the pessimist. The kind of exercise we take is not so important as regularity. Eight hours is the average person's needed quota of sleep. A lukewarm bath, or a glass of warm milk, often induces sleep. Fatigue is Nature's warning. It is caused by poisons poured into the blood, which sometimes result from violent and long-continued effort. Overfatigue often causes sleeplessness.

The important thing in eating is the kind of food taken rather than the quantity consumed. When very tired, one should refrain from eating heartily, and it is not best to eat between meals. It is perhaps trite to mention that overeating has caused more sickness than undereating. Hard foods, such as toast, hard fruits, and other eatables, known as roughage, are necessary to health.

The subject of what and how to eat provides a field for endless discussion. There is hardly any foodstuff of either animal or vegetable origin but has its opponents. There is no doubt but that we are the exact sum of what we have eaten. Notwithstanding all the preaching from press and pulpit, many people do not realize that digestion or indigestion begins in the mouth. A wise doctor once said to a dyspeptic patient, "Your stomach would be all right but for the indigestion of the mouth from which you are suffering." Although food may have been properly prepared before serving, it is very important that it should undergo proper mastication. A good part of the digestion of starches is already accomplished before they ever reach the intestines.

The great trouble of the present day is that we have formed the habit of eating combinations of concentrated foods which contain too much nutriment and too little bulk. We have gone to an extreme in the mixing and refining of foodstuffs. Sugar contains 1,800 calories per pound, while lettuce has only 90 calories per pound. Yet this latter food is nearly as important to the human system as sugar.

In the present evolution of our food habits, however, all of the changes are not for the worse. During the past 50 years, the population of the United States has increased five times, while the consumption of fruit has increased twenty times. Meat is being largely eliminated from the breakfast menu in most homes, and there is little doubt but that this reduction of excessive meat eating has relieved the kidneys and intestines of many people

from an unnecessary burden, and actually contributed to their physical endurance.

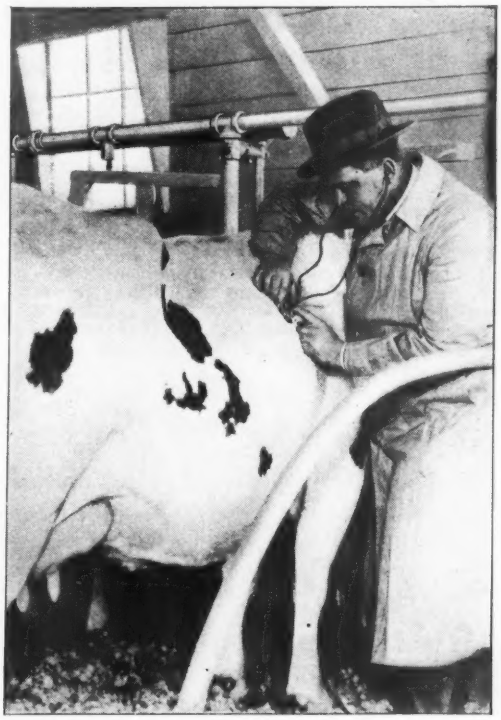
There is no doubt but that the time will come when many diseases will be remedied by administering foods instead of medicines. One group of investigators already asserts that celery has curative properties for persons suffering from rheumatism, or nervous indigestion and kindred nerve troubles. Watercress is said to contain principles which are remedial against scurvy. Peanuts, which are rich in fats and proteids, are especially recommended in the treatment of diabetics. The onion is a splendid nerve strengthener, being especially useful in cases of nervous prostration, and serving quickly to restore and tone up a jaded physical system. Asparagus, by its alkaloids, will induce salutary perspiration. Many insist that carrots will relieve asthma, and eggs, especially their yolks, will help to cure jaundice, and can be utilized for clearing the voice. Instead of iron as a chalybeate, the pulp of raw beef, or animal blood in black pudding, is suggested as an efficient substitute, while the bitter Seville orange will admirably take the place of quinine as a prince of tonics for debilitated persons. As a matter of fact, the science of curing human ailments by dieting is only in its infancy.

It probably would be better if our chemists were devoting more of their time to studying common foodstuffs, and giving less attention to the manufacture of new foods. Each day we are getting farther away from nature and becoming more a race that is sustained by eating artificial products concocted in laboratories. Some human foods that are now being sold with impunity will kill animals that are fed on them for a short period of time. We may take a quart of milk, a handful of fertile earth, a dozen eggs or a pound of wheat, and if we analyze any one of these substances the results will show that to a greater or less extent, 16 elements are always present. The human body contains all of these elements, and must be constantly supplied with them through the medium of food. Unfortunately, many of the foods we eat are so refined that six or seven elements are removed, and this greatly reduces the value of such foods.

If a cereal seed is placed in a solution of water containing the usual mineral salts, the cereal will attain to normal, healthy growth; but in other solutions, from each of which one or more of the mineral salts have been omitted, the plant will become seriously affected. If the seed of cereal is placed in a solution that is deficient in iron, the plant later will lack in the development of chlorophyll, which substance gives it its green color and corresponds with the hemoglobin, or red coloring matter of the human blood. Just as there can be no satisfactory vegetable life without chlorophyll, there can be no animal life without hemoglobin. Both depend on iron for their existence.

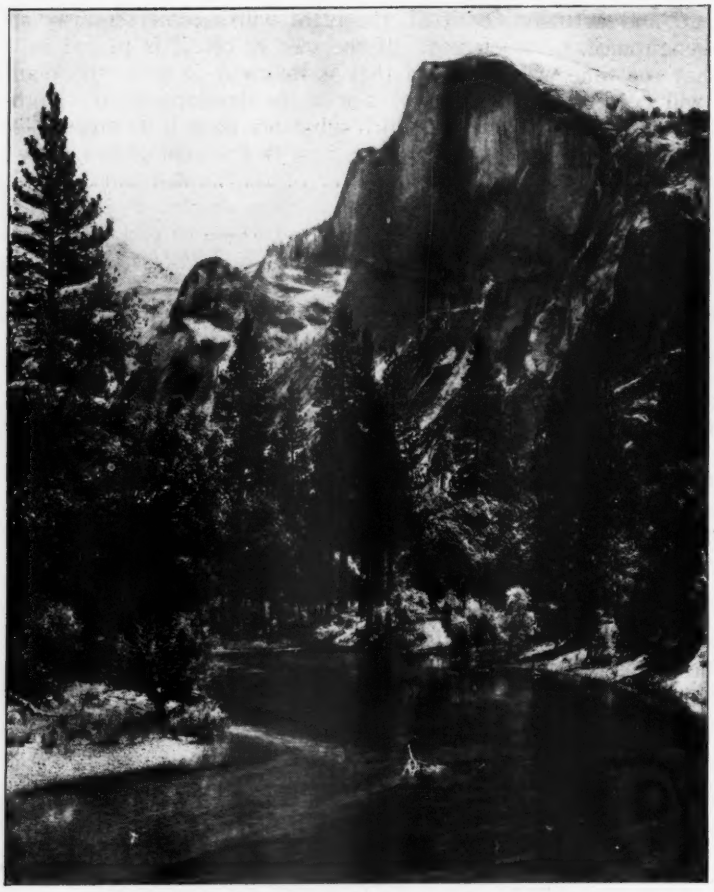
One of the mysteries of life is how Nature is able to take certain mineral compounds that are deadly poisons and so change the substances that when absorbed into the human system their action is not only without harmful effects, but is actually beneficial. Iodine, for instance, would not be a healthy solution to swallow, but when the thyroid gland is deprived of it, the health of the whole body is sure to suffer.

This lack of understanding of the chemical practices of Nature has led us into many errors. When the chemist analyzes a quan-



THE CAREFUL INSPECTION OF FOOD

The milk we drink is very carefully watched, and the cows undergo periodical inspections. Municipal health departments are in charge of most of this work



HALF DOME, IN YOSEMITE PARK

The national parks and monuments of America are meant as playgrounds for the people, and thousands of tourists visit them every year. But for most of the population these great parks are remote and inaccessible. Municipal parks and playgrounds, however, are within the reach of most city dwellers, and even our rural districts are beginning to utilize the same idea with the consolidated rural schools as centres

tity of human blood he reports that the iron of the red corpuscles is iron oxide. However, it is a fact that the iron in the blood does not exist in such form. The failure of the public to understand that a deficiency of certain minerals in the body cannot be remedied simply by going to a drug store and purchasing supplies of mineral salts to take internally has worked much harm to humans generally and has built large fortunes for the manufacturers of patent medicines. The various mineral salts that are contained in the blood and organs of the human system are present in complicated forms that cannot be easily duplicated in the laboratory practices of man.

It is only within the last ten years that people have come to realize that the way to get the minerals that are needed in the human body is to eat food that contains these essential elements. Intelligent folks are beginning to frown on commercial practices that now appear to be founded on false assumptions. In years gone by the idea prevailed that all food might be divided into three groups—carbohydrates, proteins, and fats. These were the valuable parts, and in addition there was a waste residue called ash. It is this waste, or ash, that contains the important food minerals and vitamines which are now coming to be looked upon more and more as essential constituents of human food.

Since health is a matter of such great economic importance to the country, the question rises as to what can best be done to increase the average percentage of the nation's physical efficiency. Doubtless the place to commence in the matter of health conservation is with our children. The physical fitness of our youth is a public responsibility. The larger part of our moral and mental development, as well as our industrial efficiency, depends upon physical preparedness. The health of children should come before their schoolbooks. If we start with the proper physical education of the child, we need not worry about the health of the adult.

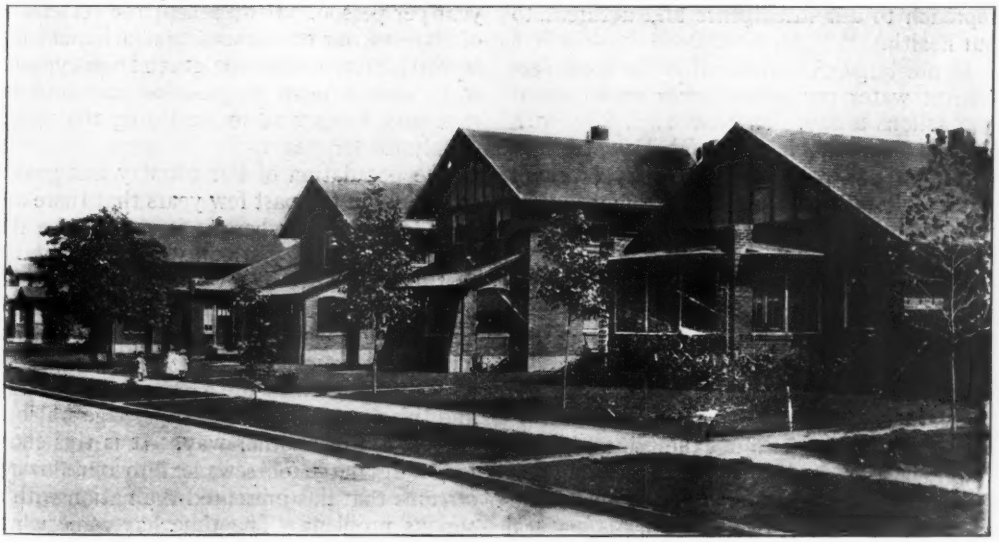
Seventy-five per cent. of the school children in the United States are suffering from physical defects. Of the 22,000,000 school children in this country, 1 per cent. are mentally defective; more than 1 per cent. have organic heart disease; 5 per cent. have

tuberculosis; 5 per cent. defective hearing; 25 per cent. defective eyes; 20 per cent. are suffering from malnutrition; 20 per cent. have adenoids, diseased tonsils, or glandular defects; about 15 per cent. have joint defects, and from 50 to 75 per cent. have defective teeth. One amazing revelation is that the rural school children in the United States are handicapped by more physical defects than the pupils in the city schools.

The answer to this problem is more physical education. By using our voluntary muscles, we may affect all the organs, parts, and tissues of the human body. This is what we mean by body building, for it is possible through the use of the muscles to bring different parts of the body into action, thus breaking down old tissue, and, through increased circulation, digestion, assimilation, and so on, replacing the old waste material with new. The philosopher's brain, the glass blower's lungs, the blacksmith's arm, and the ballet girl's legs, are the trite illustrations of the effect of a localized distribution of the body's nutriment. Physical training at its best is applied hygiene. The gymnasium is to the cause of physical education what the library is to the cause of mental education. As one commentator remarks: "If the present universal use of automobiles and elevators is continued, we may expect our great-great-great-grandchildren to be born without legs."

Millions of Americans could not only add years to their existences, but a 50 per cent. increase to their general efficiency, through intelligent exercise. Unless there is sufficient energy to drive it to its maximum of possibilities, the best educated brain is more or less an intellectual as well as an economic waste. America could be made into practically a 100 per cent. efficient nation within the next generation by a Federal programme of intelligent physical education. Such a proposed plan of training cannot begin at too early an age, and the schoolroom is the proper place to start.

It is actually a fact that we give less attention to the health of our school children than we do to crops and livestock. Hardly one American school in a hundred has an ordinary scale which can be used by the teachers to weigh their pupils, with the idea of discovering which of the children show evidences of malnutrition. It is a sad commentary on our present health efforts that we have so carefully weighed the baby and later permitted the school child to go with no attention in this respect. Practically all children can be interested in the game of getting weighed. In one school the idea of gaining weight was



PROPER HOUSING CONDITIONS MEAN BETTER HEALTH

Many corporations pay strict attention to the health of their employees, and in an effort to improve their living conditions build whole towns in the vicinity of their factories. This row of houses in Gary, Indiana, was built by the American Sheet and Tin Plate Company for its employees

made popular through the organization of nutrition classes. Individual weight charts for each child were used, and a spirit of rivalry was roused among the various groups. We can do nothing more important than to try and improve the quality of the material that will go to form our future citizenship.

It should not be forgotten that private health and public health are so closely related that they are practically inseparable. For instance, in the case of typhoid fever, the individual is quite helpless without the coöperation of the community, for the spread of the disease can be prevented only by giving careful attention to the purity of the water supply, adequate housing, and the proper handling of food outside the home.

Water ranks second only to air as a human necessity. Two-thirds of all animal organism consists of it. We overlook its real value because it is so cheap and so plentiful. The question of community sanitation, so far as it is represented by clean streets and an adequate sewerage system, appears to have advanced more rapidly in recent years than our appreciation of the value of pure water. In the matter of a supply of water for our cities, American engineers have directed more attention to procuring volume than quality. In hundreds of communities the supply of water that is furnished the population is a reproach to our intelligence and a threat to our health.

In our larger American cities the consumption of water per person amounts to about 100 gallons a day. In New York City with its 6,000,000 inhabitants the daily water consumption per person is about 35 ordinary bucketfuls. But though we use more water here than they do in Continental cities, the prevalence of typhoid fever in the United States is far greater than in Europe. A recent survey showed that our typhoid death rate was three times as high as that in European centres, and these superior conditions across the ocean have resulted from action and not accident.

The typhoid germ is the viper in the public-health world. It is a little plant averaging only about two one-thousandths of an inch long. Water is not its natural habitat, but it will remain alive there from two days to three weeks. It is this knowledge that Mister Bacillus Typhosus will eventually die that causes our city engineers to place large reservoirs where a reserve supply of water can be stored for weeks prior to its use.

For years we believed that careful filtration of water was the only safeguard against the typhoid germ, but along about 1907 a Chicago chemist while engaged in making the water of Bubbly Creek in the Chicago Stockyards less offensive discovered that water could be purified by gassing the bacteria with chlorine. The process was so successful that by the end of 1911 five hundred municipal water supplies were being made safe by this method. One improvement after another was added to this water purification scheme until at the present time practically all of our up-to-date cities and towns safeguard health by gassing the disease germs in their water supply.

Taking fifty-seven of our leading cities, the typhoid death rate in them dropped from 28 per 100,000 of population in 1908 to less than six in 1920. Of course, part of this saving in lives was due to general sanitary improvements but the chief cause of this annual saving of 1,200 lives per 1,000,000 of population in our cities has been this new method of gas warfare on the typhoid germ. More amazing than all else is the fact that the cost of making water safe through gassing seldom amounts to more than 40 cents per 1,000,000 gallons of water treated. In the average town of 5,000 population this means about 3 cents a year per person. If we accept the statement of some of our economists that a human life is worth $1,500, then one death from typhoid costs such a town as much as it would be necessary to expend in sterilizing the water supply for ten years.

The population of our country has grown so rapidly in the past few years that there are very few regions where it is safe to use the water from near-by streams or lakes without first purifying it. The waste of the people in a large city amounts to approximately two and a half tons per person annually. New York City pours more than 600,000,000 gallons of sewage into the Hudson River daily and this does not include the garbage which is disposed of in another way. It is this enormous discharge of sewage into our flowing streams that has presented the nation with a serious problem. The time has come when every intelligent person must realize that the functions of the human body will not operate to the highest advantage unless the individual is supplied with safe water.

ADVENTURES IN ARABIA

The Dangers of Penetrating to the Interior of the Arabian Peninsula. Some of the Incorrect Impressions of Arabia That Are Current in the Outside World. Comparisons and Contrasts. The Possible Future of One of the Oldest and One of the Least Known Lands of the World

By E. ALEXANDER POWELL

IT IS a curious circumstance, when you pause to consider it, that of Arabia, whose shores are skirted almost daily, for upwards of two thousand miles by tourist-laden steamers, which can be reached by airplane from Cairo between breakfast and luncheon of a single day, the Western world has less knowledge than it has of Inner Asia or Equatorial Africa, or the Polar regions. Though in area the peninsula is one-third the size of the United States, the Europeans who have penetrated its mysterious interior can be numbered on the fingers of one's two hands. Sadler, Palgrave, Burton, Pelly, Doughty, Lawrence, Leachman, Philby, and two women, Lady Anne Blunt (the granddaughter of Lord Byron) and Miss Gertrude Bell—there you have all, or nearly all, of the names that comprise the brief, intrepid list. It is the only land which has successfully defied the white man and halted the onsweep of civilization, the lives and customs of its ten million inhabitants having remained virtually unchanged since the world was young. It is the sole remaining country on the map considerable areas of which are still marked "unexplored." It is the Last Frontier.

More untruths, more nonsense, have been written about the Arabs than about any race on earth. We of the West have generally formed our mental pictures of the Arab from fleeting glimpses of unrepresentive individuals —usually "town Arabs"—in the bazaars of north African and Syrian coast towns, from sensational novels written by superficially informed persons in the safety and comfort of Biskra or Damascus hotels, and from ridiculous characterizations, filmed in Hollywood studios and southern California deserts, on the motion-picture screen. We habitually mispronounce his commonest words—"sheikh" for example—and of the chief cities of the hinterland—Nejd, Riyadh, Hayl—most of us have never so much as heard. We credit him with qualities which he does not possess, we attribute to him habits of which he has no knowledge, we place him in settings which he has never seen. We picture him as armed with a lance and a long-barrelled flintlock, whereas he is amply supplied with modern rifles and machine guns. We are pleased to think of the Arabs, when we think of them at all, as being wholly negligible from a political or military standpoint, when, as a matter of fact, they to-day hold the balance of power in western Asia and form the most potentially powerful element in the world of Islam.

Though the first European went to Arabia seven hundred years before the birth of Christ, in twenty-six centuries the white man has gotten less than a dozen miles inland. The only spot on the entire seaboard of the great peninsula where he has succeeded in maintaining a foothold is Aden, to whose sun-scorched rocks a British garrison clings by the grace of God and the guns of the British fleet. The Arab has not needed forts, or a fleet, to stop the white man. He has had three allies: the harborless, surf-pounded coast, the desert, and the sun—especially the sun. The brown man draws over his head a thin fold of cotton and the sun lets him pass. The white man covers *his* head with an inch of cork and the sun strikes through it and kills him. What threat could be offered by a European army to a people who are habituated to a climate where the mercury frequently rises to 130 (and no shade!) and has been known to drop seventy degrees in thirty minutes—who can live for days on a handful of dates and a bowl of camel's milk—whose tented cities can vanish in an hour—and whose swift dromedaries, when pressed, can cover four-score miles a day? What would be the menace of the mightiest fleet to these men of the desert, few of whom have set eyes upon the sea?

SHEIKH MOHAMMED BASSAM
Who made himself a millionaire by selling camels to the British army during the War

MAJOR POWELL
At the time of his arrival at the railhead in 'Iraq after having crossed Northern Arabia by caravan

A NORTHERN ARABIAN
A Bedouin of the Shammar Tribe

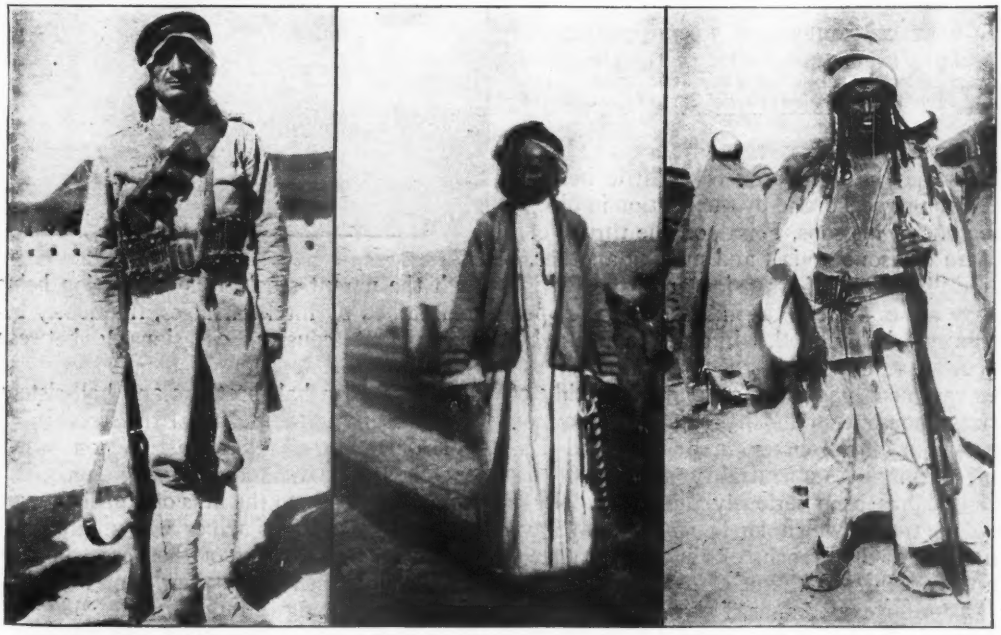
From time beyond reckoning Arabia has been one of the world's great crossroads. Yet at the same time it forms a mighty barrier between the lands that fringe the Mediterranean and the countries of the Middle East. Though across its orange wastes lies the short cut to the rich markets of Mesopotamia, Persia, and India, it is still traversed only by plodding caravans. The importance of this, the shortest route between West and East, has not escaped the British, however, who, I am reliably informed, are making plans for a railway and pipe-line from Bagdad straight across the desert, as the airplane flies, to Haifa, the port which they are rapidly developing on the coast of Palestine. When this line, which presents few engineering difficulties, becomes a fact, the journey, which now takes three weeks by sea, can be made in that number of days. So, in a much nearer future, I imagine, than most people suppose, the grunt of the camel will be drowned by the hoot of the locomotive, and the winding trade routes across the desert, worn by generations of patient, plodding feet, will be replaced by twin lines of shining steel.

The Arabs are a people of Semitic extraction, their characteristically Hebraic features substantiating their claim that Abraham was the founder of their race. Though they once played a brilliant rôle in history, they are now represented by a congeries of half-savage, nomadic tribes who occupy that portion of the continent of Asia bounded on the west by the Red Sea, on the south by the Indian Ocean, on the south and southeast by the Persian Gulf, and on the east and north by the Tigris River up to its source in the foothills of Kurdistan. Paralleling the Red Sea, the Indian Ocean, and the Persian Gulf are mountain ranges which in places rise to a height of several thousand feet. Between these mountains and the sea is a broad band of desert. Within the barrier thus formed is a mountainous plateau known as Nejd, which is the cradle of the Arab race. Surrounding this plateau on all sides is the waterless desert of red sand known as the Nefuds, the crossing of which is fraught with such peril that Nejd has been visited by barely a dozen Europeans. Owing to its isolation and inaccessibility, Nejd has always been able to maintain its independence. Not only that, but, in the beginning of the last century, its ruler startled the Mos-

lem world by seizing the holy cities of Mecca and Medina and founding the Wahhabi kingdom, which is to-day the most powerful single influence in Arabia, and, perhaps, in all Islam.

The Wahhabis might be described as the Puritans of the Moslem world, for, founded in the desire to reëstablish the teachings of the Koran in their original austerity and purity, the sect bears much the same relation to Mohammedanism as the Puritans bore to Christianity. The Wahhabis are so stout a bulwark of religious puritanism that they have "proctors" to ensure that the tenets of the sect are rigidly observed, that such rules as that forbidding smoking are scrupulously obeyed, and to see to it that the mosques remain without ornamentation, for the minarets, colored tiles, costly rugs, and mural decorations which characterize the mosques in other Moslem regions are anathema to the Wahhabis, who regard any embellishment of their praying places as the work of Satan. So strictly are these rules observed that Wahhabis crossing the desert during the fasting month of Ramazan refrain from eating, drinking, smoking, or swallowing their own saliva between sunrise and sunset, and this in spite of the fact that the Koran specifically exempts from these penances those engaged on a journey. The Wahhabis who accompanied the caravan with which I traveled from Damascus to Bagdad at the height of the hot season, when the mercury frequently climbed to 125, steadfastly declined my proffered water-bottle even when their black and swollen tongues were hanging from their mouths.

The rise and decline of the Wahhabi kingdom forms one of the most picturesque and interesting chapters in Arab history. In 1817 Wahhabiland was occupied by a Turko-Egyptian army which remained in possession of the country for a quarter of a century. With its withdrawal there began a series of struggles between rival pretenders to the emirate which ended only in 1872, when Ibn Rashid, the emir of Hayl, succeeded in making himself the supreme ruler of Wahhabiland. Ibn Sa'ud, the present emir of Nejd and imam of the Wahhabi sect, is to-day the most powerful ruler in all Arabia and, incidentally, a deadly enemy of King Hussein of the Hedjaz, whose stewardship of Mecca and Medina, and whose unauthorized assumption of the title "King of the Arab Countries" he bitterly resents and challenges. By their support of the aged



A TROOPER OF THE 'IRAQ CAMEL CORPS

A PROFESSIONAL CARAVAN LEADER

A BEDOUIN OF THE ANAZEH TRIBE

CAMELS LOADED AND READY TO START

PART OF A HERD OF 50,000 CAMELS

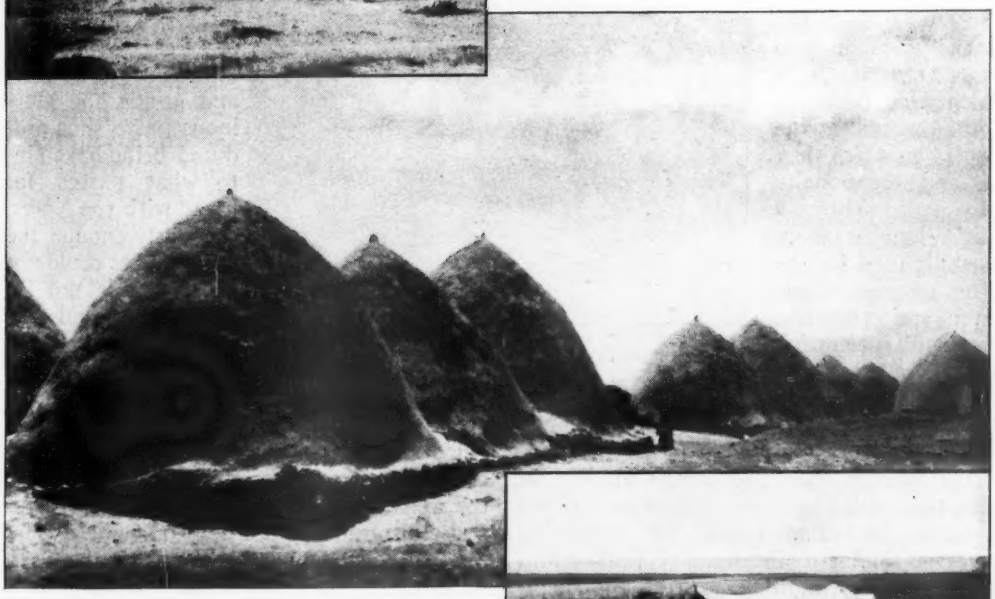
Belonging to the Shammar Tribe. This picture was taken during the tribe's spring migration up the valley of the Euphrates. (Below) Piles of Camel dung collected for fuel

Hussein, who is reputed to be little better than an imbecile, and by their action in placing one of his sons, Feisal, on the throne of 'Iraq (Mesopotamia), and making another, Abdullah, emir of Transjordania, the British have aroused the antagonism, if not the open enmity, of Ibn Sa'ud. In order to ensure his neutrality, if not his allegiance, the British Government pays him an annual subsidy of sixty thousand pounds, though it is common gossip in official circles in Bagdad and Damascus that the neutrality so dearly purchased has been seriously undermined by a secret treaty which he is reported to have made with the French. Think not that there are no politics in the desert.

The term Bedouin (the native name is *Beddu*) is used by the nomadic Arabs to distinguish themselves from the sedentary or "town Arabs" and the semi-sedentary Arabs engaged in agriculture, known as *fellaheen*. The Bedouins are divided into tribes, the tribes into sub-tribes, and the sub-tribes into families, but, however numerous the members of these families may be, or however far they may stray from the Nejd homeland, they never lose their connection with the parent stock, this connection being maintained by intermarriages, frequently between first cousins, occasionally between uncles and nieces, aunts and nephews, more rarely between half-brothers and half-sisters, thus preserving the purity of the blood.

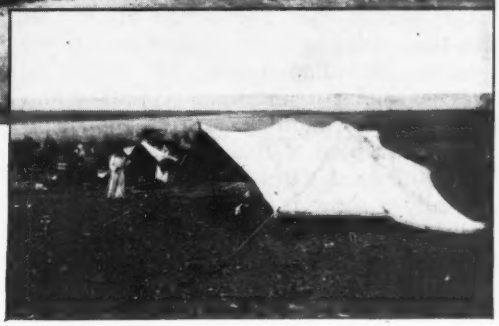
Throughout all that vast region which stretches from the Jordan to the Tigris, and from the Nefuds to the hills of Kurdistan, are Bedouins of various tribes who migrate according to the seasons of the year from one region to another, from their winter to their summer camping grounds. The Bedouins migrating between the Nejd and the upper valley of the Euphrates are divided into two large and powerful tribes, the Anizeh and the

Shammars. But besides these great tribes there are many small ones, such as the Hubeisen, the Ruwalas, and the Sokbars. To the inexperienced European eye they all look and dress very much alike, but the Arabs can identify the tribes to which individuals belong as readily as an Englishman can recognize a Yorkshireman, a Cornishman, or a man from Devon. It is impossible to identify a given tribe with any definite locality, however, for they range over hundreds of miles, according to the season of the year, moving, for instance, from the vicinity of Nejd as far northward as Diarbekr, a distance equivalent to that from the Gulf of Mexico to the Canadian border.



A "BEE HIVE" VILLAGE

Built by the semi-sedentary Arabs of the upper Euphrates. These windowless dwellings are made of sun-dried bricks covered with a crude plaster. They each contain only one room, but they are well adapted to a region where the mercury sometimes rises to 130 degrees



MAJOR POWELL'S EXPEDITION

Encamped on the Hamad, in northern Arabia. The author's tent is in the foreground

About the time that the snow is beginning to disappear from the streets of American cities the annual spring exodus from central Arabia begins, the Bedouins, accompanied by their womenfolk and children, their camels, horses, and sheep, moving slowly northward from the Nejd, across the Hamad, or Syrian Desert, and so up the broad valley of the Euphrates until they reach the Kurdish hills. Here they spend the summer months, pitching their black tents on the grassy slopes and fattening their animals on the rich pasturage which carpets the valley bottoms. The trek of one of these great tribes affords a spectacle as unique as it is imposing. It is a nation on the move. When, in June and July, 1922, I crossed the desert from the Tigris to Aleppo, I encountered the Shammars on their northward migration. The low goat's-hair tents of the main encampment stretched along the skyline for upwards of seven miles—a great nomad city. Far as the eye could see the plain was dotted with grazing animals. The

French military authorities at Rakka estimated that this single tribe had with it thirty thousand sheep and fifty thousand camels and that its sheikh could put in the field twenty thousand well-armed fighting men. In the early months of autumn the southward march begins, and, by the time that our Thanksgiving comes around, the nomads are back in the Arabian homeland again, where they spend the winter and then, with the coming of spring, enact the great migration all over again.

On what does the Bedouin live? Mainly on what is yielded by the camel, or, more properly, the she-camel, for she provides him with food, drink, clothing, shelter, transportation, and even fuel, for, where there is no wood, camel dung is used for fires. The long hair of the camels is made into the garments with which the Bedouins clothe themselves, the carpets on which they sit, and occasionally into tents, though goat's-hair is more generally used for the latter purpose. During the spring months, when milk is plentiful, the milk of the camels is curdled, strained, pressed, and made into small balls which are dried in the sun. Then, in the months when the camels are not in milk, these dried balls are crushed and stirred in water, providing a sour but sustaining beverage similar to the *yourt* of Turkey and Bulgaria. The morning meal of a Bedouin consists of a bowl of this soured milk and a handful of dried dates—nothing more. Occasionally a sheep is slaughtered, and, very rarely, a young camel, but the Bedouin seldom tastes meat save on some special occasion. From dates they make quite a palatable pudding. Those of the Bedouins who can afford it purchase from the *fellaheen* a coarse barley flour which they use for bread, the loaves, which are in the form of enormous pancakes, eighteen inches across and a quarter of an inch in thickness, having the toughness of sole leather. A strip of bread is torn from the loaf and twisted into a sort of cornucopia which is stuffed with date pudding, much as ice cream is put into a cone, the whole being washed down with a draught of camel's milk. Nutritious, yes, but, to a European, scarcely appetizing. Though locusts are a plague to the *fellaheen*, they are a blessing to the Bedouin, who roasts their hind legs and wings over the coals and considers them a great delicacy. In order to provide against the lean winter months, when food of every sort is scarce, he lays in large stores of the grasshopper-like insects, which he dries and grinds, the glutinous paste thus produced being baked into what passes for bread with the Arabs. Curiously enough the Arab horses could not exist were it not for the locust and the camel, for the horses are also fed with this locust flour, which the Bedouins assert is twice as nourishing as the same amount of barley. And on long desert marches, when the wells are few and far between, the mares and colts are fed twice daily on camel's milk. One of the Bedouin's finest qualities, indeed, is his affection for his horse. When food is scarce, it is always the Bedouin who goes hungry.

COLONEL LEACHMAN

A British officer and one of the most daring of modern Arabian explorers, who was recently murdered by Arabs

Among certain of the nomadic tribes which I encountered I found, to my surprise, that tea was the principal drink, coffee being used very much as we were wont to use liqueurs before prohibition came in. The coffee,

which is always made from freshly roasted berries brought from the Yemen, is seasoned with a seed which gives it a peculiar aromatic flavor, and is served, without sugar, in small cups, scarcely larger than a thimble, it being customary, particularly on occasions of ceremony, for the coffee pot to make the round of the circle three times. Only half a cup is served at a time, for, were it to be filled, the guest might interpret it as a hint that he was expected to take his departure. Which reminds me that Abbas Hilmi, the former Khedive of Egypt, was wont to intimate to his visitors how long he expected them to remain by what he offered them to smoke, a cigarette implying a brief visit and a cigar a longer one.

FEISAL I, KING OF 'IRAQ

Though King Feisal is a son of King Hussein of the Hedjaz, the leader of the Sunni sect of Mohammedans, he has been placed by the British on the throne of 'Iraq (Mesopotamia), a country whose population is composed solidly of Shiah Mohammedans.

The sheikhs of the great tribes, such as the Anizeh and the Shammars, are frequently rich men, the subsidies which they receive from the British and the French governments, the tolls which they levy on travelers passing through their territory, and the income which they derive from the sale of horses, camels, and sheep, to say nothing of the profits produced by successful raids, often running into thousands of pounds. The customary toll levied on travelers or caravans is ten Turkish gold liras (about fifty dollars) per person. French and British officials with whom I talked estimated the wealth of Sheikh Arjil of the Shammars, for example, at from two to five million dollars. This great sum, which is entirely in gold, he will not entrust to a bank—indeed, he never enters a city—but carries it with him in American-made steel safes lashed to the back of camels.

About the "ship of the desert," as the camel has been poetically called, much nonsense has been written, as, for example, that it can go for two and even three weeks without water. Ghazi Mansour, the leader of the caravan with which I crossed the Hamad, told me that during the cool season, when there is plenty of grass, a camel can travel for a week, or, at the outside, for ten days, without water, but that during the hot months it must be watered every three or four days. It should also be understood that there are almost as many breeds of camels as there are of horses, and that there is as much differences between a *djemal mai*, or draught animal, and a *hejin*, or racing dromedary, as there is between a Percheron and a thoroughbred. The Syrian camel is the greatest weight carrier, being able to cover seventy miles in twenty-four hours with a load of five hundred pounds. The carefully bred *hejin*, which are raised in central and southern Arabia and are usually white or gray in color, with a gait as smooth as that of a Kentucky thoroughbred, can, if pressed, make eighty and even ninety miles in twenty-four hours and on long journeys have been known to travel five hundred miles in six days. Before Cairo was connected with the coast by railway, the despatch riders of the Khedive Ismail were wont to start with the European mails upon the arrival of a steamer at Alexandria and deliver them twenty-four hours later at the Abdin Palace in Cairo, one hundred and ten miles away.

Arabia is covered by a network of caravan routes which traverse it in all directions, for every yard of cloth, every case of cartridges, every box of matches used in the interior towns of the peninsula and along the upper reaches of

the Tigris and the Euphrates reach them on the backs of camels. A recognized freight and passenger tariff is in force, as on American railways, the charge for transporting merchandise from Damascus to Bagdad, for example, being about forty cents a pound, and about seventy-five dollars each for passengers. A caravan may consist of anywhere from a score to a thousand or more camels. The larger it is, of course, the better it is able to defend itself against attack, and, by the same token, the greater temptation it offers to Bedouin raiding parties. In order to facilitate this desert traffic there has long been in existence the *rafiq*, or safe-conduct, system. Each tribe, it should be understood, has a recognized *dira*, or range, within which it is supreme, and, in passing from the *dira* of one tribe to that of another, a *rafiq* is absolutely necessary to ensure the caravan's safety. A further measure of precaution is provided by the employment of the *'Uqeil*, or professional caravan leaders, who are generally permitted to pass without molestation by all tribes and are thus able to conduct caravans with more or less security. They are usually chosen from the tribesmen of central Arabia or the Hauran, care being taken, however, to exclude from the guild members of the more powerful tribes, such as the Anazeh and the Shammars, and those which have blood feuds, so as to preserve the neutral character of what is, to all intents and purposes, a caravan conductors' union.

A PERSIAN ARAB
This individual is from the shores of the Persian Gulf

The leader of a caravan is confronted by much the same problems, difficulties, and dangers which were encountered by the freighters who crossed our own plains three-quarters of a century ago. His merchandise, it is true, is borne on the backs of camels instead of being hauled by oxen; his womenfolk ride in hooded litters instead of prairie schooners; he is in danger of attack by Bedouins instead of Indians. But the weary journey is made at the same two-and-a-half-miles-an-hour gait, there is the same oven-like heat and the same torrential rains, the same suffocating dust, the same deadly monotony of hot blue sky and hot orange desert, the same tantalizing mirages, the same scarcity of food and pasturage and water. Particularly of water, for, whereas the American plainsman encountered frequent lakes and streams, the miserable desert wells on which the Arab must depend are frequently a week's journey apart and, during the hot season, are often found to be empty.

Owing to the difficulty of keeping the camels from straying in the darkness, caravans comparatively seldom travel by night. The start is usually made at four in the morning, just as dawn is breaking, the march continuing without a break until nightfall, for, in a region where the thermometer frequently registers 125, tents afford scant protection from the heat and there is little to be gained by a halt at midday. When the caravan is in Bedouin country all military precautions are rigidly observed, two or three men riding well ahead of the column as an advance guard while others are thrown out as skirmishers on either flank. A few hundred yards in advance of the main body rides the caravan leader, mounted on a swift *hejin;* then come the passengers, if there are any, the women and children in hooded litters, two to a camel, which look like chicken-coops with canvas roofs. In their wake stalks the long train of baggage camels, heavy, ponderous, slow-moving beasts, each carrying its five-hundred-pound burden sewn up in burlap-covered

bales. Water is carried in skins, each containing about thirty gallons, slung under the animals' bellies. Last of all is another small group of Arabs, who serve as a rear guard and round up any animals that attempt to lag or stray. Though the British authorities in Mesopotamia, and the French in Syria, permit only one rifle to every ten men of a caravan, once the dangerous country is entered Mausers and cartridge-stuffed bandoliers, theretofore carefully concealed, appear as though by magic, and thenceforward, until the patrols of the British Camel Corps or the French *mehara*ïstes are sighted, every man goes armed.

(UPPER) CROSSING THE HAMAD
The caravan halts for coffee
(LOWER) A CAMEL LITTER
Used by Arab women on desert journeys

The site chosen for the night's camp is usually a *wadi*, or shallow valley, so that the presence of the caravan may not be betrayed to roaming Bedouins by its campfires. The bales of merchandise are unloaded from the grumbling camels (though the pack saddles are not removed) and arranged so as to form a *zariba*, or hollow square, which affords admirable protection in case of an attack. As soon as the goat's-hair tents—"the black tents of Kedar" mentioned in the Scriptures—have been pitched, and the fires of camel's dung have been started, the animals, in charge of herdsmen a[illegible] driven off to graze, for, save in the heig[illegible] summer, pasturage of sorts can usually be found in the desert. As soon as darkness sets in they are brought back and hobbled in a long line without the walls of the *zariba*, rifles are examined and placed in readiness for instant use, sentries are posted along the *wadi's* rim, and the resting caravan takes on all the aspects of a military bivouac. I might add that even in the desert the daily prayers prescribed for the Faithful are rigidly observed, at daybreak, and again at sunset, the men of the party, led by one of their own number, who may or may not be a *mullah*, forming in line, their faces turned toward the Holy Places, and performing the interminable series of prayers and prostrations required from the followers of the Prophet. I imagine that much the same scenes must have been enacted by Brigham Young and his Mormons when they crossed the plains to Utah seventy-odd years ago.

The free-born, footloose son of the desert, flying across the sands on his Arab steed, has long held captive the imagination of the West, whose writers and poets have idealized him. As a matter of fact, however, the Bedouin stands on a very low cultural plane; he is very far from the chivalrous, high-principled, tender-hearted hero of the popular novel and the silver screen. The poets sing of Bedouin hospitality. Yet his hospitality when all is said and done, is a purely reciprocal arrangement. If he gives food and shelter to travelers it is because he expects, when he is traveling, that others will give food and shelter to him. Hospitality is a custom of the desert and its limits are, moreover, definitely defined. A stranger may consider himself in absolute safety as long as he is under the tent of his host and no longer. And the number of days that a stranger has a right to demand hospitality is as definitely limited as the period that a friend of a member may enjoy the privileges of a club. The oft-quoted assertion that the Bedouin never molests one with whom he has once broken bread brings a cynical smile to the lips of those who know the desert. It is true that he will not kill or rob a stranger while beneath his tent, but he will not hesitate to do so once the stranger has left his camp. He tells the truth only when it suits his purpose to do so. In his treatment of

women he is as chivalrous as the American Indian. "What we cannot eat ourselves we give to the women," is one of his sayings. "The women can eat anything." Morals, as we know the term, he has none. Many of his personal habits are disgusting. I have been told that in certain tribes, when a Bedouin wishes fat with his meal, he cuts it with his knife from the tail of a living sheep and eats it without cooking. I myself saw two Bedouins, who joined our caravan near El Garah, loosen their hair, which they wear in long braids, schoolgirl fashion, and shampoo it with rotten eggs whipped up in camel's urine. In his cruelty, and his ingenuity in devising tortures, the Bedouin rivals the Apache. The political agent at Ramadie, on the Euphrates, told me of a British officer, captured by hostile Bedouins, whom they had literally cut into small pieces with their knives. The things they have done to French soldiers who have fallen into their hands would not bear repetition here. Because one of the passengers with our caravan had not paid his passage money, the sheikh actually abandoned him, and his wife and baby, in the desert, where they would have been left to die of thirst had not my companions and I interfered. Yet the Bedouin has many fine qualities withal. He is courageous, abstemious, thoughtful, courteous, patient, religious in that he faithfully observes the teachings of the Koran, honest in financial matters, faithful to a trust, and, once his word is given he never breaks it. His nearest counterpart is, perhaps, the old-time Indian of our Western plains.

Because of their poverty, polygamy is rarer among the nomads than among the Arabs of the towns, it usually being only the sheikhs who can afford to support more than one wife. Though the husband can divorce his wife at will upon repayment of the marriage settlement, it is almost impossible for the wife, under the Koranic law, to obtain a divorce under any circumstances. In case of ill-treatment, however, she can take refuge with relatives or friends and her husband cannot molest her, the quarrel usually being patched up by emissaries representing both parties. Slavery still flourishes in Arabia, the slaves, who are generally brought from Nubia as children, usually being well treated by their masters. They invariably adopt Mohammedanism and frequently rise to positions of power in the tribes, for the Bedouins are essentially a democratic people and there is no color line drawn in the desert.

What is the future of Arabia? Will she remain a barrier eventually to be smashed, as all barriers are smashed that obstruct the march of progress? Will the East and the West meet across her in battle only, as they did in the days of the Crusades? Will she become the seat of a great Arab Empire stretching from the Kurdish mountains to the shores of the Indian Ocean, from the Mediterranean to Persia? Or will France and England continue to cling to their mandates in Syria and Palestine and Mesopotamia against the Arabs' will? Could we know what is going on behind the scenes in Downing Street and at the Quai d' Orsay, in Constantinople and at Angora, where British and French policies are blocking each other and where their jealousies are blocking all progress in western Asia, it would be easier to find the answers to these questions. For it is the jealousy and suspicion existing between these two Powers which are directly responsible for the dangerous unrest which prevails throughout the Arab lands to-day. But nothing is more certain than that Arabia is the stage on which will be enacted, sooner or later, one of the greatest dramas in the history of mankind. And in that drama the Arabs themselves will play no minor part.

"PETERING" AND "ELECTING" FINANCIAL BABES

The Newest Methods of Stock Selling "Reloaders." A Description of Two Most Productive Methods of These Houses of the Underworld of Finance

By SCHUYLER PATTERSON

In the criminal world a safe-blower is sometimes called a "peterman." In recent times the methods employed by the so-called "reloading" houses in the underworld of finance, because of their effectiveness in parting people from their money, have become known as "dynamiting." It is therefore natural that one variety of these methods should be called "petering." In this article is shown how "petering" and another even more effective method of sharp practice—"electing"—are practised. If the public becomes familiar with the methods of such houses it will be better able to withstand their appeal. THE EDITORS.

THE ARREST of three young men in New York, directing geniuses of the Crager System of "Reloaders," who had amassed more than a million dollars within a few months by means of a scheme alleged by the Postal authorities to be a violation of the mail fraud laws, has brought to light a few entirely new methods for separating the public from its money.

During the boom years of 1919 and 1920 all lines of business were prosperous and practically any industry could show satisfactory progress, whether efficiently handled or not. On the strength of unusual incomes at that time, many small and theretofore honestly conducted industrial concerns all over the country sold stock to persons who had never held a share in anything in their lives before, with the result that when the crash came the companies found themselves grossly overcapitalized, with depreciated inventories and earnings either wiped out or cut to a fraction; and the shareholders discovered themselves to be the owners of securities of intangible value.

Facing such reduced and frequently fatal financial circumstances it naturally followed that the administration of many of these companies turned about for a little more capital with which to bridge over the existing dearth of business to the better times in prospect. Banks, very wisely, refused to advance money in quantities, pursuing the policy that short-sighted management was not the best earnest of repayment. Officers of such concerns have been and are ready to snatch at straws.

Responding to this situation is the latest fancy of the stock shark. There have sprung up in New York and other large cities a class of brokers known in the vernacular as "reloaders." They assist decadent concerns—at a price—and have evolved their own system for doing it.

The first "reloader" is believed to have come into being about three years ago. At that time the bucket-shop and promotion games were flourishing and the idea was neglected by such élite. As originally carried out the plan was simply to resell or "reload" original purchasers of a stock with more of it before they became too disgusted.

As developed to-day however, "reloading" has become a fine art, one which requires the most skillful and astute stock-salesmen, but one also in which rewards are commensurate with effort. It meets completely all foreseeable objections that a prospective purchaser could raise and necessitates but one visit.

A "reloading" house, such as the Crager System, first circularizes concerns whose stocks have been promoted in the last two or three years; suggesting that additional capital may be welcome. A circular letter might be couched in the following general terms (this particular one was used by a "reloading" house in Chicago):

At this time we are completing the distribution of a dividend-paying security and are desirous of

obtaining an underwriting of a high-grade character that will be acceptable to our clientèle and associate brokers.

Your company has been favorably recommended to us and the purpose of this communication is to inaugurate negotiations with a view to meeting your needs for expansion purposes, on a basis which will expeditiously furnish you the capital required.

An early conference either at your office or ours is most advisable, etc.

The stationery is impressive and the letter conservative. It will be noticed that this particular one mentions first an "underwriting" and then assures funds for expansion "expeditiously." A loophole. "Underwriting" is the term used by a banker or broker when an offered issue is bought outright from a company and then resold to clients. The risk, if any, being assumed by the broker.

The reloader uses the term as bait. In an underwriting the broker would not pay the money expeditiously, he would hand it over immediately. The reloader is not looking for "wise clients" who understand what an underwriting is. The less a prospective firm knows of Wall Street and its expressions the better.

Some addressed concerns reply. The time has come for dickering. The reloader house has already been offered some excellent propositions, it really does not know for example whether it wishes to take up the matter of the Smith-Jones Manufacturing Company at all. How many stockholders have they? Only five hundred. That is very few. How much stock have they to sell? That is quite a meagre amount to warrant the efforts of Crager. It really is hardly worth while, but if the Smith-Jones Manufacturing Company is very much in earnest and is willing to pay Crager from 60 to 75 per cent. of the money that the Crager System is able to obtain for it, the matter will receive earnest consideration.

The Smith-Jones Manufacturing Company is desperate. They need money badly. There is no market for the stock and President Smith and his associates in the concern see a personal opportunity to unload some of the shares they received for services in the original issue. If the worst happens they will not be losers. The agreement is made, The Crager System sign a contract to sell the stock of the Smith-Jones Manufacturing Company to the wide world and the present stockholders of the company in particular, for a consideration of 65 per cent. of the money they obtain.

VARIATIONS IN METHOD

FROM this point the attack varies. There are several methods, but the two most ingenious are "petering" and "electing." The former is less smooth but more popular among the brokers, for one reason, if no other, that it requires less experienced stock-salesmen. Picking out the holders of two- and three-hundred-share lots of the stock of the Smith-Jones Manufacturing Company, the Crager and similar systems set about "petering" as a flier. Trusted salesmen are sent to certain large centres such as Chicago, Boston, and Baltimore, there to open brokerage houses under assumed names. Two high-pressure men are assigned to each one of these offices.

Stockholders of the Smith–Jones Manufacturing Company begin to receive letters. These come from Chicago, Boston, and Baltimore and, although signed by different names and couched in different terms, their purport is identical, being to the effect that the Blank, Blunk, and Blink Brokerage concerns are interested in the immediate purchase of five hundred shares of Smith–Jones Manufacturing Company, for which they will pay eight dollars a share, subject, of course, to prior purchase and change in price. They request an immediate reply.

Recipients of these missives are deeply stirred. Stock which they had written off to profit and loss and which originally cost them but five dollars a share is now being bid for right and left at eight dollars, with the possibility of higher figures. Certainly a rare opportunity. One and all answer, regretting that they have not five hundred shares but offering holdings of two or three hundred shares. Some, more enthusiastic, enclose certificates, requesting checks by return mail. The latter seldom see their shares again and never get any money. The former receive immediate replies that the bid is for five hundred shares only, no smaller amounts being desired, but the brokerage houses will leave the bid open for a few days, subject etc., in the event that the holder can obtain more.

Meanwhile an excited letter comes from The Crager System as Fiscal Agents for the Smith–Jones Manufacturing Company. Mr. Client must not allow himself to be duped by

certain brokerage concerns which are endeavoring to buy the shares of the company for a song. Large interests in Wall Street seek control of the Smith–Jones Manufacturing Company and have engaged the services of brokerage houses outside of New York. If Mr. Client allows himself to be fooled he will lose all possible chance of the big profits which are now but in the offing and his time of patient waiting when the fortunes of the company seemed at low ebb will be wasted. The Smith–Jones Manufacturing Company is even now taking steps to forestall just such an unfortunate eventuality. Mr. Client will hear more from them within a few days.

"PROTECTING" THE CLIENT

THE Cragers keep their word. Mr. Client is visited by two bustling and important-looking gentlemen, whose cards indicate that they are the "Special Representatives" of The Crager System, the Fiscal Agents. Anxiously they inquire if Mr. Client has sold his stock. In unison they breathe sighs of relief to learn he has not. They are brisk and businesslike. Their mission is one of extreme importance not to the Company but to Mr. Client. He must make a momentous decision at once. The Smith-Jones Manufacturing Company has come into its own. Its patent, (on an automobile accessory) has at length received due recognition, and, realizing the huge demand for it, to be anticipated from all automobile manufacturers, the same bankers who tried to wreck Ford are attempting to gain control through stock ownership—for that purpose making bids which they believe the uninitiate will snap up. Eight dollars a share is laughable for the stock of the Smith-Jones Company now. With present prospects, dividends of that amount would be paid every month and the stock worth one hundred dollars a share within no time. Smith and his associates, honest men that they are, have ordered that no one be allowed to take advantage of those who entrusted them with their funds when they started out and who carried on when things looked darkest.

Smith has insisted to the Board of Directors therefore that, instead of buying up the stock themselves, thereby profiting by the information they alone have had, the stockholders be forewarned and the shares in the treasury which the scheming Wall Street financiers might obtain be distributed to them pro rata at the original subscription price, that they solely may reap the huge benefits. Mr. Client is invited to read carefully a beautifully engraved and embossed sheet of paper similar to a stock certificate. This informs him that the Smith-Jones Manufacturing Company has allotted to him 300 shares of treasury stock at five dollars a share to which he is entitled to subscribe. Should he for any reason not wish to take advantage of his allotment, it is necessary that he sign this blank on the bottom in the space provided therefor. In italics Mr. Client's attention is called to the fact that his signature there holds the Smith-Jones Manufacturing Company, its Agents etc. forever harmless and immune from any and all claims for profits or dividends which he might have obtained had he taken advantage of this allotment and purchased the shares.

WHAT AN "ALLOTMENT" IS

LEGALLY, of course, this allotment blank means nothing. To one familiar with stock transactions or brokerage practice it would be laughable, but to the unsophisticated purchaser of questionable stocks it looks important. His businesslike callers make it very clear that his action either way is of no importance to them. At the same time they are legally responsible (that is why two of them are sent) for his proper understanding of the case. They are bound to inform him that the Company is now on the eve of a period of wonderful earnings. His investment of a few hundreds will mean thousands. At the same time he knows his own resources best.

Mr. Client is in a quandary. He may not have the money or he may need his funds for other purposes. He may wish to discuss the matter with his attorney or think it over. That, he is told, is out of the question. These two gentlemen have travelled a great distance expressly to see him, he knew they were coming, their time is limited; they must return to their office immediately to make report on his decision; in fact, they must start within a few minutes. What he does is of no moment to them, but he must make up his mind without temporizing. What does he intend to do?

Mr. Client has every confidence in the word of these gentlemen not only because of their impressive personalities and appearances, but as a result of the "build up" effected by the various letters and telegrams he has received.

That he buys his allotment goes almost without saying. The only possible reason for his failing to do so would be that of lack of funds. But even if he needs his money for other purposes he believes he can sell the additional shares to one of the brokerage houses which has solicited him for eight dollars a share, thereby turning more than a 60-per-cent. profit. It is a matter of record that in about 90 per cent. of instances Mr. Client buys.

HANDICAPS OF "PETERING"

IT WAS the foregoing scheme of "petering" which placed the Crager System in the bad graces of the Postal authorities. Investigation brought out that they had been the originators of the letters and telegrams sent from the alleged brokerage houses in the various cities, as well as the telegrams purporting to come from the Smith-Jones Manufacturing Company, the result being that they face the possibility of a visit to Atlanta at the expense of Uncle Sam.

There are various defects in "petering" from the standpoint of the stock salesman. First the likelihood of a tilt with the Post Office Inspectors. It is a well-known axiom among stock-sharks that, while local district attorneys and prosecuting agencies may be handcuffed or fixed in many instances, the Federal authorities move slowly but with absolute finality and that when they spring a trap it usually has caught its quarry.

That is the purely legal side—the grief side, as it is known. The scheme has the additional drawback of permitting the prospect to decline purchasing on the ground that he has no money—an unanswerable argument—the only possible one that a salesman cannot combat. This difficulty is overcome in "electing".

When a salesman approaches a sucker—a buyer of questionable stocks—who is moreover a holder of shares in the particular concern to be discussed, it is comparatively simple for him to reënthuse his man, for the sucker wants to believe his story, hopes that what he says is true, for it means turning into a profit what appeared to be a loss and a rehabilitation of the sucker's confidence in his own judgment, which has probably been subjected to some severe strains since his wife learned of his little flier and let some of the neighbors in on the secret.

But the sucker may be wary enough to limit his enthusiasm and stand on his original purchase regardless of all the promises dangled before his eyes. He knows that the excuse of lack of money is the infallible one which no salesman can successfully gainsay. He invariably falls back on this as a last resort.

On the other hand, even if he is sufficiently interested to buy more stock, he may feel that he wants only a few shares, and may be "unsold" if the allotment is too large. So, also, if he can afford to take more than the allotment, seldom will he say so and the salesman loses that much more commission.

Therefore "electing", which covers both of these contingencies, is regarded as far superior to anything yet developed. When properly carried out it is almost invariably successful, too, though the Cragers are not known to have practised it.

In this case there are no preliminaries from the various brokers. Mr. Client is addressed on the stationery of the Advisory Board of the Smith-Jones Company, the letter being signed by Mr. Jones, Chairman. He is advised that a member of the Advisory Board's Investigating Committee will communicate with him in regard to an appointment within a day or so and suggests that he offer this representative every courtesy as his call has to do with a matter of moment not only to the Smith-Jones Company but to Mr. Client as well.

In due time Mr. Client receives a telephone call from Mr. Robinson of the Smith-Jones Company, who is very grave, courteous, and dignified over the wire, refusing to divulge any of his business and asking for an immediate appointment.

"ELECTION" TO THE "ADVISORY BOARD"

HIS curiosity piqued, Mr. Client arranges to see Mr. Robinson immediately. His visitor, who is dignity personified, informs Mr. Client of all the wonderful things the company has been doing, just as the Special Representatives did in the other instance. But this time there is no allotment blank and no urgence to buy. Mr. Robinson is self-possession itself. He finally tells Mr. Client that he has been sent to see him pursuant to the established policy of the Smith-Jones Company, which is to select from among its stockholders certain persons of outstanding acumen to serve on the Advisory Board and

Mr. Client's name has been among those suggested.

Before proceeding to further discussion however, there is one point which must be cleared up. Is Mr. Client prepared to make the journey to New York once every six weeks, if necessary, to attend meetings of the Board? Of course all expenses of every kind will be paid by the company, but occasionally a man may be too much involved in his own affairs to care to take that much time away. That point is essential.

Far from discouraging Mr. Client, the suggestion intrigues him. A trip to New York every six weeks to sit on the Advisory Board of the Smith-Jones Company, with all expenses paid. At last he is receiving the recognition he deserves. Certainly that point will present no difficulty.

Very well then. There are certain personal matters on which the company wishes further enlightenment before admitting Mr. Client to so important a position. Mr. Robinson has a questionnaire which he desires to submit and must ask that Mr. Client answer the interrogations as exactly as possible. All have an important bearing on the matter.

With this preliminary Mr. Robinson produces a beautifully embossed sheet, bearing the name of the Advisory Board, etc. and these questions, all of which are propounded to Mr. Client:

What is your full name?
What is your age?
Are you married?
Your wife's maiden name?
How many children (if any)?
Their ages?
What was your father's name?
What business was he in?
Have you ever failed in business?
If so have you been absolved from bankruptcy?
Give the names of three personal references.
Give the names of one or more bank references.
With whom do you bank?
Do you carry a checking account?
What is your average balance?
What is your balance now (approximately)?
Do you carry a savings account in your name or wife's?
What does this now total?
Are you the owner of any municipal or government bonds or securities?
How much? and specify.
Do you believe your standing in this community to be such as would make your election to the Advisory Board an asset to this Company?
Do you know of any reason why you should not be elected to the Advisory Board?

Having made satisfactory answers Mr. Client is assured by the salesman that there is no reason in the world why he should not now be elected. (If one is familiar with Wall Street parlance, by the way, a person is "elected" when his margin on a stock is exhausted and he is sold out; when he has lost a lot of money on some trade and has been forced to accept his loss, or when he has bought a stock that is a "pup.") Stock salesmen therefore have had many a snicker on informing various Mr. Clients that they were about to be "elected."

From this point on the salesman has the choice of two methods to pursue. He may leave Mr. Client in this flattered condition to inform his fellow-townsmen of his coming election to the Advisory Board of the Smith-Jones Company, which makes it more difficult for him to withdraw later, or he may proceed to strike while the iron is hot and get the money then and there. The latter is by far the more popular course, since, following the precepts of old Omar, it is the motto of all stock touts to take the cash and let the credit go.

Either then or later therefore he makes it apparent to Mr. Client that, occupying his present prominent position in the Company, it will be necessary for him to have a larger interest in its affairs and it is therefore incumbent that he take an additional block of stock, the size of the block being predicated on the statement which the salesman has of Mr. Client's cash position, together with his saleable bond holdings.

Mr. Client cannot plead lack of funds, and, with the free trips to the City in his mind's eye, he buys. And his money goes the way of all money handed over to these gentry. The salesman and his principal each gets more than the Smith-Jones Company and the only trip Mr. Client takes to New York is when he goes there to identify, if he can find him, the man who sold him more stock.

SUNSET ON HUDSON BAY

WINTER ON WETALLTOOK'S ISLANDS

By ROBERT J. FLAHERTY, F. R. G. S.

Photographs copyrighted by Revillon Fréres

The first map of Hudson Bay published in the year 1612 was based upon the notes of Hendrick Hudson, which were brought out in the year 1611 by the mutinous crew which cast him adrift to perish from exposure and starvation.

This map shows three large islands which disappeared from the chart as early as 1709. Various explanations for Hudson's delineation have since been given. Burpee, for instance, in his chapter on the discovery of the Bay speaking of Hudson's voyage and chart says:

"The chart shows several large islands lying off the western coast of Hudson's Bay between 56° and 60°. From Roe's Welcome in the far north to the foot of James Bay only two large islands lie off the western coast, Marble Island and Akimiski. The former being out of the question, we are reduced to Akimiski. That convenient island seems to be a peg on which to hang every theory of the fourth voyage that defies other solution." (L. J. Burpee: The Search for the Western Sea, New York, 1908.)

Wetalltook's Islands lie approximately in the latitude of the islands shown on Hudson's chart. Might they not then present the solution of the problem?

Luke Fox in the summer of 1631 sailed along the Eastern Coast. In about the latitude of the islands shown on Hudson's chart, he mentions the existence of certain islands, which he says Hudson named "Lancaster, his Isles." No trace of this name however appears in any of Hudson's notes. Of the size and character of the islands, Fox gave no information.

All of the island systems which outlie the east coast, as shown on the Admiralty Chart, are based on the notes and maps of Captain Coates, who from 1727 to 1751, sailed in and out annually along the east coast of Hudson Bay. In the light of what we found, his depiction of Wetalltook's Islands, the so-called Belchers, as a group of small islands in dotted outline, the largest of them not ten miles long, seems incredible.

"Belcher's Islands, four in number, lyes forty-five leagues to westward of Little Whale River;" by another account, only twenty-nine leagues in latitude 56° 06', where I was entangled three days in ice.

"About seven leagues north from those is a range of islands twenty leagues in length, fourteen larger, and many smaller; the midle, in 58° 00' N. latitude, at a distance of seventeen leagues from the east main, amongst which the Usquemows swarms all the summer months to catch fish and moulted fowl, in great abundance, upon all these, Belchers and Sleeper Islands." (John Barrow, edit.: The Geography of Hudson's Bay: Being the remarks of Captain W. Coates, etc., Hakluyt Soc. Publs., 1st Series, Vol. 11, London, 1852, p. 66.)

Strangely enough, when I last visited Great Whale River Coast in the "Laddie,"—this was immediately following the first landing on the Islands—there had been brought into the Post, by one of the traders, as a curio from a far out post east of Southern James Bay, an old copy of company correspondence—letters of Sir George Simpson, Governor of the Hudson's Bay Company, and of his factors on the Bay, during the years 1846 to 1849. These letters contained, beside routine business matters, a project for sending to the Belcher Islands, a half-breed servant of the company, Thomas Weigand, by name, with Eskimo companions. The letters relate how Weigand carried out this project. They are, however, altogether concerned with starting a fur trade on the Islands; none of them give any evidence as to either the Islands' character or size.

That this estimable scheme for mutual benefit, however, was not to be realized is apparent from the fact that the Islands so soon and so completely drop out of Hudson Bay tradition.

To the present generation of fur traders on the Bay Wetalltook's tale was a myth. Among some of the government officials at Ottawa; as well, these reports were nothing if not amusing. Where I claimed the existence of a great mass of land, they pulled out their Admiralty chart and showed me soundings! This article, the last of three, tells of how I finally reached the Belcher's, and of the winter I spent there.—R. J. F.

"YES," said Johnny Miller, the interpreter, when I landed at Charleton Island, "Wetalltook says he'll go. He's that glad to see his own land once more, sir, an' all his friends an' relations what he hasn't laid eyes on these twenty years. "An' he tells me, sir, he's real hungry for walrus an' seal an' huntin'—he's all the time talkin' about it." "He knows wonderful places for walrus, sir, where they almost cover the small rock islands they is so many. An' he knows where the bear country is, too, sir. He told me once how they had to hang things up on a string so they dangled in the wind an' made a noise in order to keep the bears from prowlin' aroun' their camps. An' more than the huntin' sir, he do want to show you how big them islands is."

By nightfall, Wetalltook's home at Charleton was no more. His wife and three children,

WETALLTOOK IN HIS KYAK

It was this Eskimo who first told Mr. Flaherty of the great extent of the Belcher Islands. Around this whole-hearted character most of Mr. Flaherty's present series centres

THE COAST OF THE BELCHER ISLANDS

This picture shows a typical section of the irregular shore line of "Wetalltook's Islands" in the summer. In winter the sea ice is rafted high about these black and treacherous rocks

his two partners, their wives and seven children and 20 dogs, kayaks, sledges, tents, and hunting gear were aboard the *Laddie*. Their impedimenta topped the *Laddie's* deck load, which was already rail high, while among the boxes and bales in the choking hold, Wetalltook and his tribe made their temporary home. The dogs, chained in the dories which swung from the davits over the rails, whined and yelped and chorused to the skies.

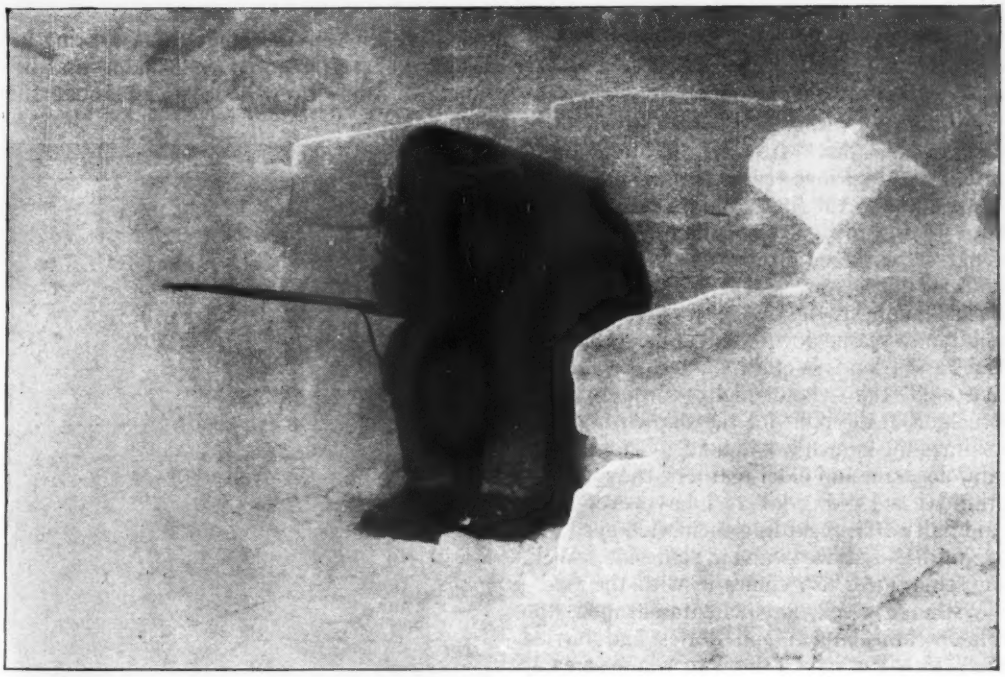
At nightfall of the fifth day of sail northward, we sighted the southern outliers of Wetalltook's Islands. Little "humpbacks" of jet they were with rings of surf around them. Aimlessly on long lazy swells with sails aflap, the *Laddie* rolled. The night stole in as we peered through the gloom for a sign of harbor, but all we could see were white rings of surf embracing the black shadows which were islands. Too dark to put out to sea again we rolled into a six fathom sounding and paid out 50 fathoms of chain in the lea of the nearest shore. The sky, when all but the watch turned in to sleep, was cloudless and crystalled with stars. But when the watch wakened us, the wind piped wild and quick through the rigging and a twisted wrack of clouds scudded swiftly through the sky. The *Laddie's* stern tailed off, not a biscuit's throw from shore. The dogs, drenched by the seas, howled and whined, the big round eyes of the women and children peered anxiously at us from the hold. With lanterns, we men hovered around the anchor chains speculating on how long they would hold.

Daylight showed us an island, a lump of rock not much larger then the ship itself, all agleam from the spume that drove over it. Nowhere was there a landing. The rack and retching of the chains as they sawed through the steel eyes of the *Laddie's* nose—the slosh of the seas that combed us and the boom of the island's shore was the dirge fifteen hours long before Bill bawled out, "The glass is climbin' sir," and as suddenly as it had come, the gale died down.

Northwestward, blue wisps of loom that seemed to float on the sea was our first glimpse of Wetalltook's Islands. We rounded, a few hours on, what proved to be the southeastern extremity of the Island group. From a narrow winding gutway we came out upon a narrow sound, landless on its northern rim. The black forbidding shell of the outer coast gave way to cliffs, ribboned by the yellow-gray and terra cotta Nastapoka rocks. The lowlands were carpets of tawn and russet moss. Wetalltook and his throng had eyes for nothing but the game—schools of white whales looping through the seas; flock upon flock of eider winging off before us; and geese skimming the profiles of slopes and hills, or regiments of them high in air.

We found a site for a camp at the head of a snug horseshoe harbor. It was locked and safe from the pressure of rafting sea ice. A noisy stream of fresh water ran into it; the head of it was a beach of sand; fine landing for kayaks and canoes. The ground around was for the most part smooth, moss sward.

As we sailed the ship to harbor, Wetalltook from the crow's nest, called out "Innuit," and pointed across the sound to a black speck of a kayak scooting over the mirror toward us. Within hailing distance, the kayaker halted, until Wetalltook called out in Eskimo, then rapidly he paddled in. Open mouthed he clambered up over the rail and speechless stood on deck, staring and smiling by turns. He did not know Wetalltook save by name, but we had to suspend operations whilst Wetalltook and his throng crowded around him and plied him with such a rapid fire of questions that the big mug of tea we had given him grew cold in his hands. By a map he showed us where the main camps of the islanders lay. With him, as pilot, Wetalltook, and two of the crew, I put off in the launch. Darkness had came before we chugged into the gloom of a harbor some twenty miles away, where on a cobbled shore stood six tents of Eskimos. The launch swept in, its rattle reëchoing among the hills. Excited packs of dogs stood howling to the skies —from the tents not a soul came forth until



AN ESKIMO SEAL HUNTER

Shielded from the piercing wind by a wall of snow blocks the Eskimos sit sometimes day after day, at the tiny breathing holes kept open by the seals. When a seal comes up beneath the ice for a fresh supply of air a quick lunge of the harpoon impales him and after a struggle the hole is enlarged and he is hauled out,to furnish the Eskimo with food, clothing, implements, and even coverings for their boats

A SNOW-COVERED DOG

Once camp is made the huskies' work is over, and in the fierce Arctic storms they are soon covered with snow, often sleeping completely buried in the drift, save for their black muzzles

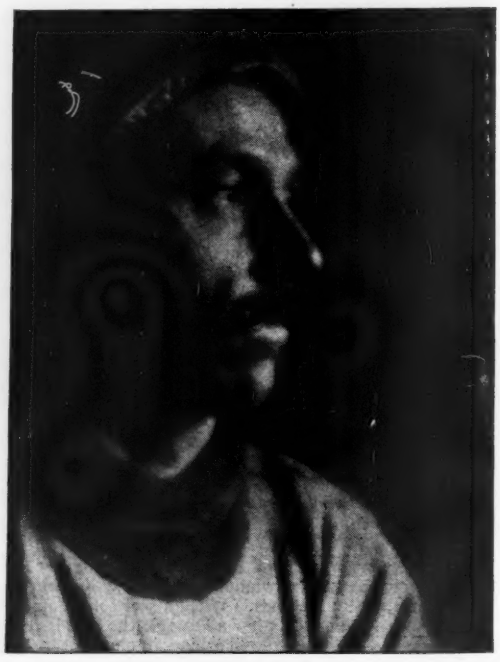
Wetalltook called "Innuit," "Chimo", and an old man haltingly came toward us.

Wetalltook explained to him who and what we were and in little time there was a group of natives gathered around us shaking hands, and exclaiming their surprise. From hiding places amongst the rocks the women and children too came down to greet us. Over old times and friends Wetalltook and the Eskimo chattered the whole night through. We struck off at daylight for the ship with all the Eskimos the launch would hold. Clad in bear-skin, dogskin, and eider feathers, they were as primitive a looking lot as I have ever seen. Said Salty Bill, regarding their wide-eyed and gaping masks, as we swung in alongside, "Well, sir, some queer fish comes in with the tide."

Within a week, kayaks catamaraned, the rifle-cracking launch and dories had ferried the *Laddie's* cargo to shore to where streams of old men, women, and children carried it to the building huts, speculating the while as to what each box and bale and bundle contained. They watched the crew hammering nails and sawing and planing lumber as they worked on the *kablunak's* wondrous *igloo*. Prizes to them were waste bits of board and bent nails.

Until the sea ice formed there was a succession of bleak, melancholy days with gales of driving sleet and rain. We were taken up with work around the base getting our gear and equipment in shape, making sledges and bartering for dogs for the winter sledging. We made inland journeys over the island upon which we lived, and cruises along its coastlines in the hope of locating sufficient driftwood for our winter's fuel. We had counted on getting driftwood but nowhere could we find a supply to serve two huts the winter through, so on the last open water of the year, we took the *Laddie* across to the Great Whale Coast on the mainland and returned with wood, laden to the rails. Of coal, we had some four tons, all that was obtainable at Moose Factory, and this, with the *Laddie's* cargo, I hoped would be enough.

With each new face that came drifting in, Wetalltook and I pored over maps and listened to what they had to say about the



"SALTY BILL"

William Robertson, who was with Mr. Flaherty during the winter spent on the Belcher Islands

Islands, and about their own hunting grounds in particular. By the number of sleeps it took to travel, we could approximate distances to the points whence they came. The magnitude of the country grew with each new tale.

With pieces of iron ore, Wetalltook explained to them that it was these rocks we came to seek. He told them how the white man "boils" these rocks and fashions the wonderful knives and guns and spear-heads which they hold so dear. He told them how they could tell if the blue rocks were iron ore by scratching them with flint, for the scratches were red streaks like blood. Several among them knew, they thought, where were the *sevick* (iron) rocks and promised to bring in pieces when they next came, which would be over the sea-ice in winter.

December came in with calm, clear, frosty skies, raked at night by glorious auroras and lighted by day with floods of sunshine. The tiniest lakes were soon closed with emerald seals, then the larger, in quick succession. The white rims of the harbor crept farther and farther out from shore, and along the sweeping arc of the sound itself a jagged ice edge sparkled in the sun. Within two weeks the *Laddie* had ceased swinging from her chains and the seal of winter was everywhere.

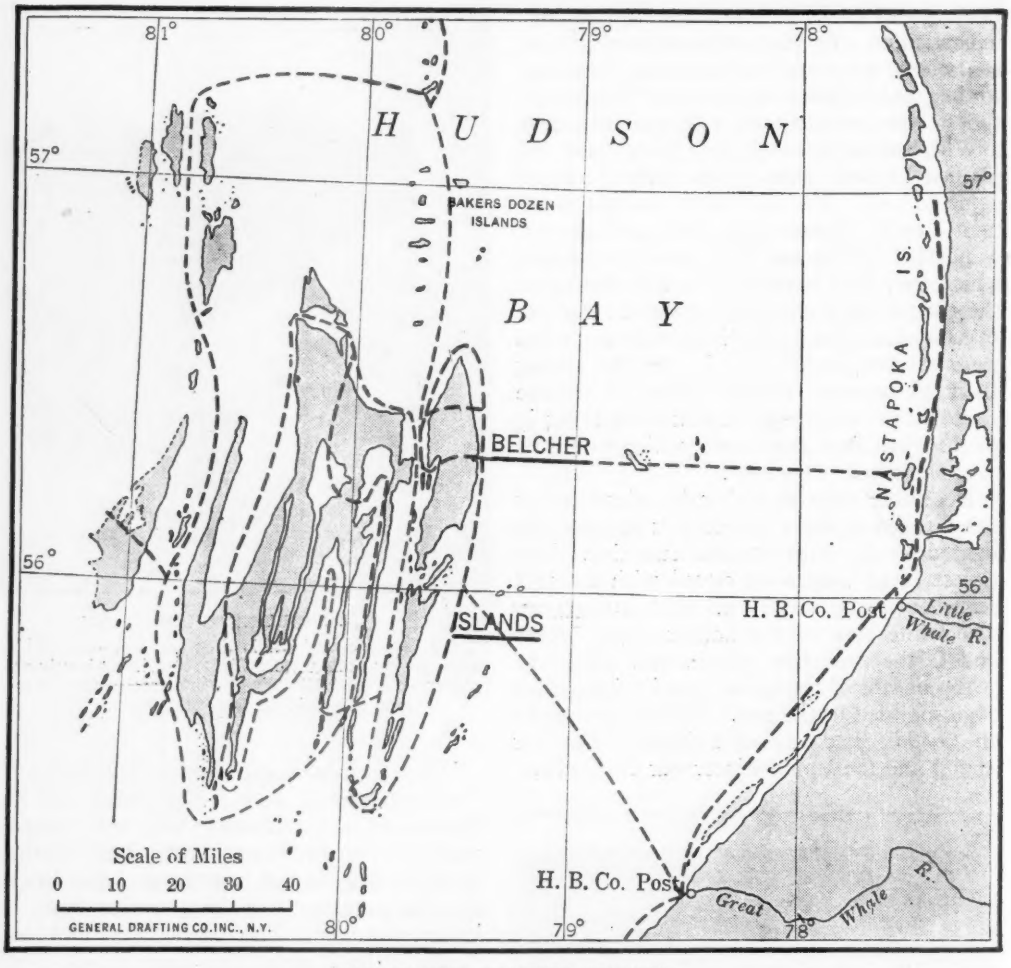
A SNARLING HUSKY

These dogs are wolf like in their ferocity, and need a sharp whip to rule them. Fights are almost hourly occurrences, but for all their savage dispositions they are vital factors in the life of the North

When Christmas came we made a day of it. We kept open house for Wetalltook and his throng and all the islanders who were camped near by. Salty Bill improvised a tree. Spruce boughs which he had brought up from Moose for the purpose of making spruce beer, he lashed to a pole. The candles were foot long miners' dips, and the decorations were brightly labeled fruit cans from the cook's scrap pile. The presents were black plug tobacco and matches for the men and needles and combs and trade candy for the women and their flocks. While Bill acted Santa Claus, Wetalltook's gramaphone belched forth rasping sounds. The lilt of Tipperary and Harry Lauder were contagious, but the "Preacher and the Bear", with its monologue and the realistic growling from a supposed bear, was a knock-out. "*Nanook! Nanook!*" (the bear! the bear!) they exclaimed, rocking with laughter, but the kiddies, half frightened, clung to their mothers and rolled their almond eyes. When the ceremonies

"THE BILLIKEN MASK" OF MUCKPALLO

One of the Belcher Island Eskimos who plays an important part in Mr. Flaherty's narrative



MAP OF THE BELCHER ISLANDS

Showing Mr. Flaherty's routes about the islands. The Belcher Islands lie in the southern part of Hudson Bay, just north of James Bay

around the tree were over, Bill herded the teddy bears of youngsters around the stove and popped corn, the most surprising thing by way of food they had ever seen. The *Cokeot nucky* (the gun food), they called it, as, enraptured, they watched the kernels popping in the air.

We had, however, to bring to an end the celebrations within the overcrowded house, for our nostrils could not become attuned to the seal odor of their society. We wound up the day by playing at nothing less than a game of baseball on the harbor ice. It was coated with just enough snow to make good ground. The *Laddie's* starboard side we used as a back-stop. The bleachers were the *Laddie's* deck, bulwarks, and rigging. If what with our cumbersome fur costumes the game lacked speed, it did not lack interest for the gallery, old men, women, young and old, and squalling youngsters, especially if one of their kind was fortunate enough to hit the ball, for, as they saw it, while the pitcher was trying to hit the batter, he with batted balls was trying to hit the pitcher. Only darkness stopped us.

It was the second of January before the first sledges of Eskimos came in from out of the mysterious west; strangers, they proved to be, who had not heard of our advent on the Islands. When we had pulled their dogs and ours from a big rolling ball of fight, Wetalltook led them indoors, ensconced them on

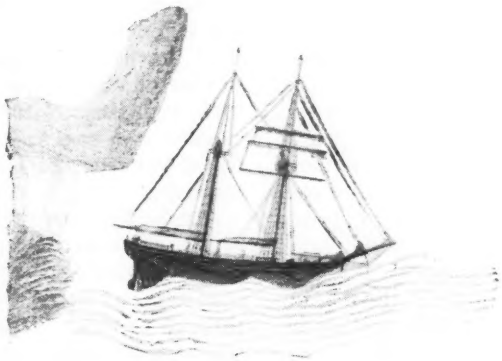
the floor and thrust sea biscuits and big mugs of scalding tea into their ready hands. It was a long time before we could question them, so lost were they in wonder of the *kablunak's igloo*, but finally we did extract the information we had long been waiting for, that everywhere to westward the sea ice was fit for travel.

At noon with a thirteen dog team, Wetalltook, two of the crew, and I, struck out for the west. The visitors with their dogs and sleds accompanied us to a point less than a sleep away where was, they thought, an outcrop of *sevick* rocks, enough to load the *kablunak's* ship many, many times. They knew that it must be a *sevick* rock, for like the flesh it showed red when they scratched it.

Winter bared its teeth as we filed over the ice. Wind swooped down in gales; it scoured the fields and hills and sent clouds of snow-smoke whirling through the air. Within the day we reached the point where the *sevick* lay. And *sevick* it proved to be—not only in loose pieces wherever were wind swept patches of bare ground, but in a vein, from 25 to 30 feet wide, running north and south along the coast. Though the coast was veiled in drift, and the vein outcropped intermittently, we traced it southward for thirty miles, so vividly did the big red band of it stand out through the black and white desolation. What with the amount of snow and the state of the weather detailed exploration would have to be left till spring, but I was to find out before the year was through that it was the richest and largest occurrence to be found on all of Wetalltook's Islands.

There was no end to the gales and drifting snow. We continued northwestward over lakes and ponds and difficult boulder-strewn ground into the deep interior. En route, we hit the ice of the northern half of Wetalltook's Great Lake which he had told me at Charleton was so large that from the south end looking north there was no land, just water like the sea. But as we travelled to its head, for no distance could we see, for the drift was blinding.

A half sleep from Wetalltook's lake, we struck the sea, and thence westerly cruised along the coast, until at nightfall we picked up the orange square of an *igloo's* lighted ice-window. As the dogs raced up to the tunnel's mouth, a stream of Eskimo gesticulating and laughing came pouring out. It was the *igloo* of one Rainbow. Not a seal had he killed for eight days, said he. All that he had to live on was sea pigeons, from an open tidal pool near by. Just before we arrived, he had killed one—the first in two days, and his wife, who was plucking it, held it up for me to see. Though they knew that I carried little or nothing in the way of food to give away, their own troubles were forgotten in the concern for the visitor who had come among them. While Rainbow helped Wetalltook with the dogs out of doors, the good wife bustled here and there putting to rights her *igloo's* disarray. She sent her daughters scurrying out of doors for a pail of clean tea-water snow, while she unrolled my sleeping bag, pulled off my *koolitah* and laid it over her feebly burning lamp so that it would be warm by morning. Nor did she allow her children, while we dined on our beans and bacon, to hover around, for fear it would prove embarrassing. When they saw me crawl in to sleep, they spoke in whispers. I dozed off to the hiss of driving snow and the low sounds of their speculations as to when the seals would come.



THE "LADDIE" ALMOST AGROUND

The drawings used with this article are all from the pencil of the Eskimo Wetalltook who gave Mr. Flaherty his first inkling of the size of the Belcher Islands. This drawing shows the *Laddie* while on her way to the Belchers. She had anchored in the lea of a rocky island, but during the night the wind shifted and blew heavily, almost wrecking her, for her stern rose and fell within a few feet of the sharp rocks

I told Rainbow, as we made ready to leave, to come into the base when I got back, and I would try to be hospitable and kind, and, "Yes," added Wetalltook, "be sure you keep one eye open for the *sevick* rocks as you come

A TYPICAL BELCHER ISLAND SCENE
With an encampment of natives on the rocky shore of an island

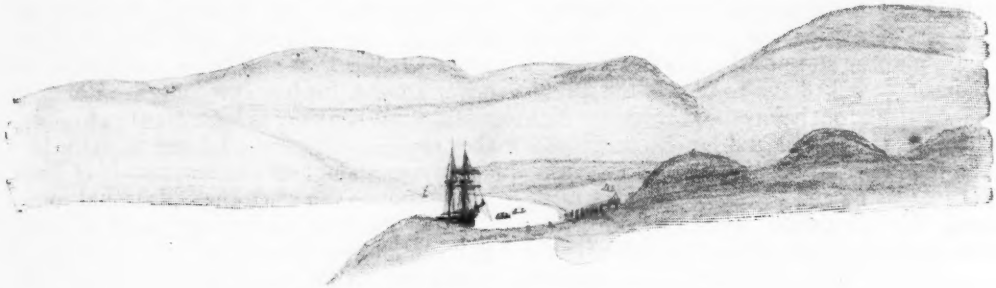
along." Rainbow said he would—that is, if he ever killed another seal, and there was a chorus of laughing. The children caught rides as the sleds, close into the heels of galloping dogs, shot down to the ice at sea—as they fell off they squealed their delight and rolled over into the snow.

Every rim of gleaming steel sky had been clear when we started out, but before we had rounded the first black nose of coast the wind was wailing and drift again filled the air. All day long we hugged the coast, half bent as we crawled along. The dogs wailed now and then; some of them vomited from the cold.

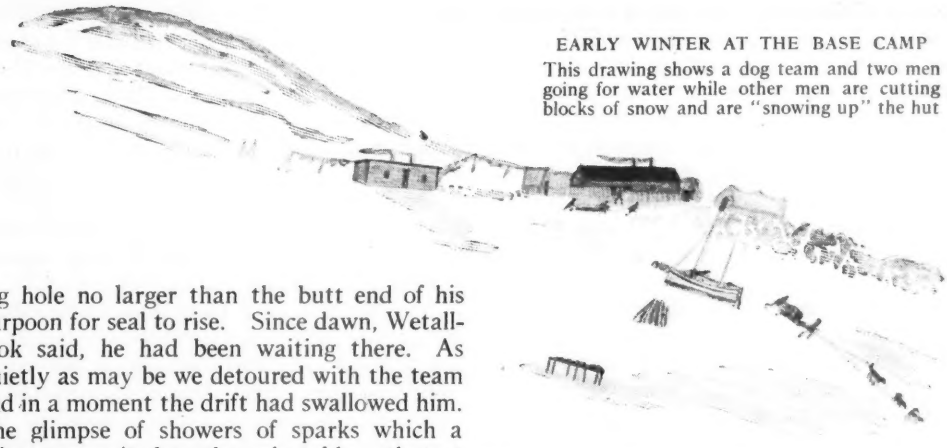
All day long two sun dogs flanked the sun, like smudges of brass and ocher thumbed on the blue enamel of the sky. The snow smoke was like lace drawn by some giant hand over the black knobs of boulder-studded hills and the folds and wrinkles of the satin plains. The glory of the day was short. By three o'clock the sun was smothered in the mists of open sea, and the wastes of snow and ice became a monotony of gray. When I mentioned *igloo,* said Wetalltook, "*Ouki,*" and pointed with his whip stock to a snow slope far ahead, and as my eyes followed his direction, I saw nested together, like so many hives, a village of snow houses.

In the first *igloo* into which I crawled was the wreck of an old man—his kindly face, seamed and weather scarred, had two shining dots for eyes. "There is no more hunting for me," he lamented, when I had greeted him, and he pointed to his legs which were bent and twisted by some disease. His daughter, no more than a girl, followed us in. Abashed by our gaze she tried to hide her embarrassment by shaking furiously the snow powder from her furs. "She does the hunting for this old man," Wetalltook explained. "Every day with the old man of the *igloo* adjoining, she goes out on the ice after seals. Every night for ten days she says they have been coming home with sledges empty—they have not even seal oil for their lamps. A salmon, now and then, which the old women catch in the ponds near by, is all the food they have." But they all forgot their troubles in their delight at seeing us. Wetalltook and they, with one of my flickering candles and the *kablunaks* good tea thrice boiled between them, yarned half the night through.

Across the mouths of deep bays and indrafts, for two days we crawled over the island's south coast. Valueless days for reconnaisance, for impenetrable drift drove through the air. When we veered from the south coast and struck north on the last lap for home, Wetalltook rigged on the sledge a blanket for sail to speed us on. Night approached, and the wind rose to a gale, burning cold. All we could think of was a sight of our cabin lights shining through the drift, when suddenly the dogs gave tongue and before I knew what had happened Wetalltook was at the head of the team, rifle-cracking his four fathom lash which brought them to a stand. Beyond him, crouching over his snow blind, arms folded on knees and harpoon in lap, sat an Eskimo watching through a breath-



THE WINTER BASE BEFORE THE FREEZE UP
While the *Laddie* was discharging her cargo



EARLY WINTER AT THE BASE CAMP

This drawing shows a dog team and two men going for water while other men are cutting blocks of snow and are "snowing up" the hut

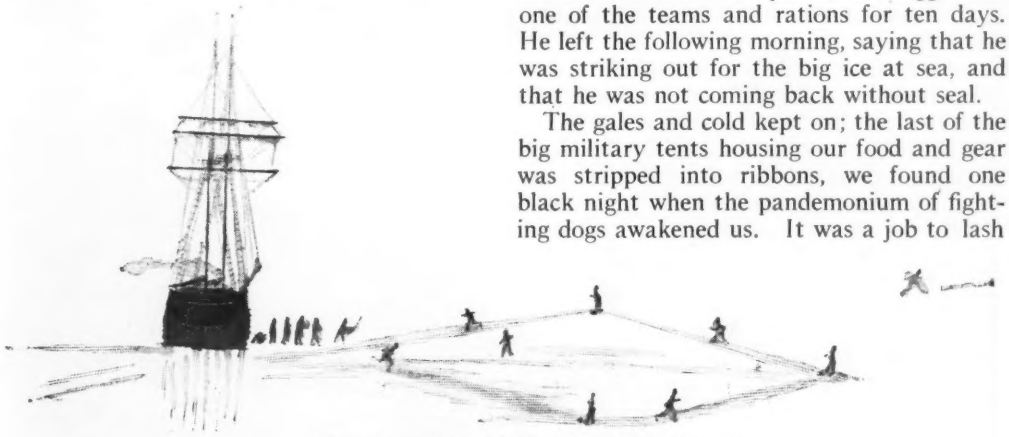
ing hole no larger than the butt end of his harpoon for seal to rise. Since dawn, Wetalltook said, he had been waiting there. As quietly as may be we detoured with the team and in a moment the drift had swallowed him. The glimpse of showers of sparks which a chimney vomited to the gale told us that at least we were home. Before I knew what had happened, Bill was peeling off my furs as I stood before the crackling stove, rubbing cheeks, ears, and nose, which felt as if they were made of parchment and burning warm.

Until midnight we talked over ways and means to the tune of the drift lashing the cabin walls and the wailing of the wind among the eaves. "'Tis the land of the gales, sir," said Salty Bill. "In the nine days you has been gone but one day came clear. In the cracker last night, the rifle shots which woke me up was the big provision tent being stripped to pieces by the gale. And these winds makes it hard for the huskies, sir. Every time there is a knockin' on the door I knows that one of them is on the other side an' with but one word "*kopunga*" (hungry) on his lips. They says there is no seals, save out in the rough ice, and they're not venturin' there now for fear of being swept to sea. 'Tis the rare salmon or two what pulls them through an' what little grub I has been given' 'em."

"But we've got to close down on dolin' out more grub, sir, for 'tis meltin' away. I have to ration Wetalltook's family in the hut now, for the huskies has been hangin' around an' of course, husky fashion, they just had to share with them until themselves went hungry."

Wetalltook looked worried when he came in the next morning. Said he, "Look here, *angerooka*, I am not the kind of man to keep on living off the *kablanak's* dwindling supply of food. I am going to take my family and go afield with the others." When I told him that he couldn't be spared, he begged for one of the teams and rations for ten days. He left the following morning, saying that he was striking out for the big ice at sea, and that he was not coming back without seal.

The gales and cold kept on; the last of the big military tents housing our food and gear was stripped into ribbons, we found one black night when the pandemonium of fighting dogs awakened us. It was a job to lash



THE BASEBALL GAME ON CHRISTMAS DAY

The Eskimo onlookers were hugely delighted with the game, for as they saw it, it was a friendly duel between the pitcher and the batter, each of whom was trying to hit the other, the one by throwing and the other by batting the ball. Wetalltook's memory failed him somewhat when he drew this picture, as a careful examination will show

them out of the way. Tookalook's old master dog had a big sealed tin of bulley beef in his paws and though strips of tin were jammed between his fangs, he tore it open. Old boots, whips, or harness, and even a pup, (Tookalook lost three in as many days) were delicacies for them these times.

On the twelfth day was ended the biggest drifter of the year. When Bill, old Tookalook, and I crawled out, we found that the cabin was snowed up to the roof—the dogs scampered over it. Wetalltook's hut was completely buried; a shaft straight down through the snow marked its entrance. The forlorn *Laddie* was drifted bulwarks high.

"We may get good weather now," was old Tookalook's observation as he scanned the brick red sunset out in the west and pointed to the stars outcropping above it in the steely sky. "Wetalltook, I think, will now get his chance for seals." Bill and I were long since busy with supper making when old Tookalook popped his head in through the door and asked me for my "big eye" (telescope), saying that Wetalltook's wife from the lookout hill saw the black specks of a team coming in toward us. Tookalook wondered if by some rare fortune it could be Wetalltook.

It was not long before the din of knocking brought us out of doors to where on the lookout every man, woman, and child stood watching intently the slowly moving black forms of an approaching team. Wetalltook it was, they thought, but as to whether he was coming loaded or empty, they could not yet tell. The gloom thickened and the sledge crawled like a snail. I went indoors for a moment for the ship's big glass, when suddenly the wild exclamation "*Netsuk*," resounded through the air. "Wetalltook it is, sir," said Bill, "an' what's more he's bringing home the seals." "How many?" I asked, as Wetalltook waded through the crowd toward us. "*Timietow*," said he, holding up ten fingers before him.

The babel of some forty dogs shattered the peace and quiet of the first calm night in many days. Around Wetalltook, his young son, and Tookalook, the dogs, just out of reach of Wetalltook's cracking whip, circled belly down like the wolves they were. Their eyes reflecting the lantern light shone like bolts of fire. Their muzzles were white with froth of hunger. Constantly, Wetalltook kept cracking his whip around their circle, a dread lash with which he could split an ear or cut clear through their tough hides. But, one or another would attempt a desperate sally for the seal meat which old Tookalook was portioning. They were too intent to fight save when some poor devil was caught by Wetalltook's lash. The pain of it would send him bounding straight in the air, or maddened beyond all control he would bury his fangs in the unfortunate one who was nearest him. When Bill and I turned toward camp the dogs were sleeping and Wetalltook and his tribe crawled in to the feast of the

SALTY BILL'S "SPANISH WINCH"

When the *Nastapoka* ran aground on an outlying island and stove in her bottom "Salty Bill" managed to rig up, with two anchors and a drift wood log, this "Spanish winch" with which the little schooner was hauled up on the rocks for repairs

warmth-giving seal for which they had waited so long.

There were no hungry hordes of hangers-on about the hut from this time on, for everywhere, Wetalltook said, the big ice had been broken by the gale, and seal meat was in plenty in the encampments of the islanders.

By the middle of March the days grew long and warm. Cottony clouds sailed through a sky resplendently blue. There were glorious days of sledging. We made in one day distances that had required three.

On the 25th of May, Wetalltook and I were storm bound on a rocky point some thirty miles from camp. We were awakened one wild night by the boom and grind and milling of big ice, tumbling before a southeast gale. When daylight came the threads of the outer coast were broken by gigantic rafts of ice. Beyond them stood smoking sea. There had been sleet and snow and rain for two days past, and the snow-covered ice that lay between us and the camp was like a sponge charged with water. Here and there were pools so deep that the dogs swam, the sledge floated, and, we, following after, waded through depths above the knee. By dark, camp was reached. We soaked in its good red heat.

THE "NASTAPOKA" ON THE ROCKS

After "Salty Bill" rigged up his contrivance to haul the wrecked schooner high and dry and enable the party to patch her up, a canoe was sent across sixty miles of open water for supplies with which to make the necessary repairs

For a fortnight Bill and Cary had been overhauling the little *Nastapoka*—the self-same craft, the reader will remember, with which I made the first attempt to reach Wetalltook's Islands. Upon her I depended for the summer cruises around the island, and for the last trip down the bay toward the railway frontier. For the *Laddie*, since only Bill and Cary remained of her crew (Laduke in October and Sainsbury and Gushie in February had been sent across to the mainland), had been abandoned. In fact her bulwarks, yards, masts, and arms had been broken up two months before to supply the deficiency in our winter's supply of fuel.

June came in with days long and gloriously warm. Houseflies buzzed over the sunlit panes of our windows. Bumble bees hovered among the mosses. Young would-be hunters with miniature bows and arrows stalked for yellow legs, and aimed mockingly at the flocks of geese that came sailing overhead. Wetalltook, old Tookalook, and their families squatted by their kayak frames, put on fresh seal-skin covers,—while Bill and Cary overhauled the *Nastapoka* which stood by. Hunting gear and summer clothes had long since been made, and the *Nastapoka* stood ready to slide into the sea, and we had almost forgotten that a break-up would ever come, when on the morning of the memorable seventeenth of June, we were awakened by the strangely familiar sound of the wash of surf. We stared upon the blue and white of moving sea.

II

"'Tis a wind-ridden land, sir, and no mistake," said Salty, as he crawled into our diminutive cabin for an hour's sleep. The *Nastapoka* rolled and heaved at the end of her chains. For three days the drive of sleet and rain resounded like blasts of sand on our cabin roof and walls. The only breaks in its monotony were wild squalls, strong enough,

though we rode under bare poles, to heel us over. "Yes, sir," said Bill, continuing, "now I minds how we looked forward to the breaking up, and how when it come our uncivil times would be over, sir. But here we are, sir, ten days from camp and the log on the lean side of fifty miles." After a rumble of oaths that would have made a bloody pirate feel at home, Bill dozed off to sleep.

We bowled out the next morning and over big wallops of seas, sailing close hauled along the main south coast into the west. We crossed the mouths of bays and in draughts so deep their inland shores were thin lines, gray-blue. As in winter, we only bee-lined from point to point as the weather willed, cruising, however, strips of coast which the sledge trip had not touched.

At the last north camp of islanders, first among the swarms of kayakers who scooted out to where we were slipping anchor in the harbor, was old Muckpallo, his Billiken mask smiling welcome. "Walrus there are," said he, after we had "chimed", shaken hands, and given him some black plug tobacco, for a pipe that, upside down, poked obviously out from his lips. "My own eyes have seen them," said he, continuing, "a whole island of them. And my!" said he as his eyes swept the *Nastapoka's* decks, "but you have the fine *umiak* for getting them." But "how far is it?" was our first question. "Oh, not far," said he, and he pointed northeastward, over open sea. His idea of "not far" it turned out was a long day's kayaking; but the picture he painted, as only an Eskimo can, where game is involved, decided us. Muckpallo came aboard at dawn,—every man of the encampment clamored to come too—and with his kayak slung up on deck we sailed away.

At sundown we picked up the half-round rock of a small island which the log said stood forty miles at sea. A rookery it proved to be, as we crawled close in; over it like pin-points in the sky, as black and thick as flies, swarms of sea pigeons rose in panic. We were looking for a landing amongst the windings of its cobbled shores, when suddenly we sagged in the trough of a big ground swell, the *Nastapoka* struck, and the sea that followed on swung us in upon a nest of reefs. Bill jumped into the surf with a line around his middle, and half swam half tumbled to land. Scrambling up to a huge boulder he wrapped around the line. But in less time that it takes to tell, the *Nastapoka*, her bottom broken, was slashing full, and everything that was floatable 'rose out of the hatchways and drifted

THE WINTER BASE IN THE SPRING

Here Mr. Flaherty's party wintered on the Belcher Islands. When their fuel ran out they were forced to tear up the *Laddie* to last through the winter, and her hulk was left on the beach when the party returned to the mainland

MR. FLAHERTY'S SLEDGE ON A MIDWINTER EXPLORATION TOUR

The wheel was attached to the ship's log, and after a day's run a mathematical problem had to be worked out in order to determine the distance traveled, for the wheel made the log register a figure very different from the actual number of miles covered

in to shore. Gloomily enough we surveyed the hulk, which, half submerged, rocked to and fro in the lazy ground swell, and the wreckage that we had laid out before us on the rocks: blankets outspread to dry, a side of bacon, sugar now turning to syrup, and a dripping bag of tea. We made a roaring driftwood fire and while we stood around it waiting for the steaming clothes we wore to dry, we munched sodden tea biscuit and gulped scalding tea and discussed pro and con just what it was best to do. Our only means of transport I pointed out was the kayak and our canoe. "And yes," said Bill, "some sixty miles of sea to use them in. But Muckpallo said there were four small islands, albeit they were surf-bound, strung along the way to the nearest point of the main coast. He mapped them in the sand, and then leading up to the island's crest, pointed to the gray dot of the first of them which appeared to be about fifteen miles away. "Well, sir," said Bill turning from one of his gloomy surveys of the *Nastapoka's* corpse swinging among the rocks, "if I could find me a decent size o' drift wood, sir, I wants one try at salvagin' before we leaves." And though he led a hope forlorn I gave in. He and Cary came back within an hour's time carrying on their shoulders a log of driftwood that for these latitudes was surprisingly large. "'Tis a lucky find, sir," said he as he threw it down, "There's ne'er one more like it on the island," and I caught a gleam of hope in Salty's eye. Straightway he unfolded the plan. "The log is for what we calls the Spanish winch, sir," said he, "and when I makes it we'll have the *Nastapoka*, if the weather holds, up on dry land." "But look here, Bill," said I, "there are holes in the *Nastapoka* that you or I could crawl in." "I minds that, sir, but with canvas patches—we'll tar them and patch her over, and I think sir, they'll see us to the camp."

Willingly enough we started in. Bill first ran a line from the *Nastapoka* in two hundred feet on shore to where lay a narrow crack on a ledge of rock. In the crack he inserted the flukes of two anchors. In the round of the anchor flukes he shoved the driftwood log which, after infinite pains, Cary and he with hunting knives had made fairly smooth. Around the log he took two turns of the line which led to the *Nastapoka's* nose, and with chains we took half turns in the ends of the winching log and, inserting stakes, began winding. Hour after hour the winding kept on, to the tune of Bill's creaking Spanish winch;

the slosh of surf flowing in and out the *Nastapoka's* wounds, and Bill's, "She comes, me byes, she comes." There were aching backs and blistered hands for every foot we gained. On the morning of the third day Bill pointed to lowering clouds banked out in the west—"If there is a cracker in them," said he, "there'll be nothing left us but the *Nastapoka's* bones." Inch by inch we winched the *Nastapoka* near shore, and by nightfall we had her in to where

HUNTERS AND GEESE
As drawn by Wetalltook

Bill said she was safe from "the biggest sea what rolls."

Bill's plan however of patching her temporarily with tarred canvas was not so successful. In one place her planking for four feet in length and one and a half feet in width, and the ribs that supported them were gone. So Cary, old Took, and I, at dawn of the first calm day, struck out in the canoe for camp, a hop-skip-and-jump as it were between the surf-bound islands that intervened. Within seven days we were back again with extra oakum, tar, and tools, and six lengths of precious board, that since every scrap of wood about the camp had long ago been used up for fuel we had to rip from the walls themselves. In three weeks' time the *Nastapoka* again was launched, but a more patched and bandaged craft never rode the seas. With relays of the crew baling the while, Bill finally shoved her battered nose into the mill pond of camp harbor.

By the first of August our iron ore expeditions were, as far as circumstances would permit, complete. We had found all told five ranges lying east and west from one another, an average of six miles apart, and extending north and south a distance of thirty miles. The amount of iron ore among these deposits actually out-cropping was over one hundred miles, a magnitude which compares with the great iron formations of the

world. On the northern portion of one range we found the highest grade of ore—this was the *sevick* the Eskimos had shown me during the drifting days of early January. Averaging about thirty feet in width continuously for four and a half miles the outcrop ran along the deep water of what we named Muckpallo Sound.

When Sainsbury and Gushie left by sledge in early January for the mainland thence southward along the coast and overland to the line, they took with them plans of deposits, and, for analysis, samples of the ore. They were to return with a party of Sir William's engineers who were to report upon the commerciability of what we had found.*

After weeks of waiting, shouts of "*Umiak, Umiak!*" rang through the air, and a York boat wing-and-wing came bowling up the Sound. The engineers en route since the first of June were my own father, who wearing a two-months' old growth of beard, I hardly recognized; Dr. Moore, geologist, and W. H. Howard, surveyor, who besides claim surveying was to make astronomical observations for the still skeptical government at Ottawa. I shall never forget my difficulties that memorable day in trying to play host and read the while the long year's mail.

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* Flaherty, R. J., "The Belcher Islands of Hudson Bay; their discovery and Exploration," *Geog. Review*, vol. 5, No. 6. pp. 433-458, 1918.

Moore, E. S., "The Iron-Formation on Belcher Islands, Hudson Bay, with Special Reference to its Origin and its Associated Algal, Limestone", *Jour. of Geol.*, vol. 26, pp. 412-438, 1918.

"Iron-Formation on Belcher Islands, Hudson Bay, with Special Reference to its Origin and Its Associated Algal Limestone," *Bull. of the Geol. Soc., of Am.*, vol. 29, p. 90 (abstract only), 1918.

"Iron Deposits on the Belcher Islands, Hudson Bay," *Monthly Bull. of the Can. Min. Inst.*, No. 82, Feb. 1919, pp. 196-206, 1919.

"Ore Deposits of Arctic Canada," *Eng. and Min. Jour.*, vol. 110, pp. 396-400, 1920.

Woodbridge, D. E., "Iron-ore Deposits on Belcher Islands," *Eng. and Min. Jour.*, vol. 112, pp. 251-254, 1921.

Iron-Bearing Rock of Belcher Islands, Hudson Bay. By G. A. Young. *Canadian Geol. Survey*, 1922.

Within a fortnight the ore examinations were complete, and the visitors sailed out for Great Whale River on the mainland, at which point they were to catch the fur ship when it called in southward bound. At Moose Factory, they were to await the coming of Bill and myself in the *Nastapoka*, when by canoes we would all journey together up river to the rail frontier.

Since the *Nastapoka* could only carry our food, instruments, and personal gear, I divided the hut and its furnishings among Wetalltook, Tookalook, Muckpallo, and their families. There was everything—dishes, an old mirror, old magazines, powder, caps, and cartridges, knives, axes, old clothing, cloth, and old shoes. As a special payment the gramaphone and records went to Calla, our cook; a rifle to Muckpallo; the canoe to Tookalook, and to Wetalltook our old pianola, much scarred and strained and out of tune from rough transport and misuse. But to Wetalltook it was the most wonderful thing in all the world—his "big box with the many insides!"

AN ESKIMO CHILD OF THE BELCHER ISLANDS

On the 13th of September—the *Nastapoka*, deep laden with our personal gear, films, instruments, and food—Bill, Cary, and I said our last good-byes, and regretfully enough pulled up anchor, the crowd on shore gloomily watching us, and sailed out through the harbor by the poor old *Laddie's* stranded hulk, and on into the Sound—Wetalltook, old Tookalook, and Muckpallo followed us for a while, waving as they ran along the shore.

. . . . . .

I received some letters, a year later, from Great Whale River, dated three months before, and in them was news of Wetalltook's Islands. Rainbow had gone mad, the result of starvation. For many days he had been at large with the Winchester and cartridges that I had given him and he had been spreading terror among the islanders. To save themselves they had had to kill him.

Poor old Tookalook, in less than a month of my departure dared the crossing to the Great Whale Coast in the canoe I had given him, and his kayak, catamaraned. Big winds had caught him half way over. The canoe was found four days after, bottom up on the mainland shore.

A letter from good old Mavor, the factor at Great Whale, read, "Perhaps you will remember having given your pianola to Wetalltook just before you left the Belcher Islands last Fall. Well, Wetalltook was stuck with that pianola on his hands; he couldn't take it into his igloo, and he couldn't live in your cabin for he had, of course, no fuel. So he conceived the idea of sledging that pianola over to me—it seemed that you told him I would be keen to buy it—but how he could transport a full size pianola over 85 miles of sea ice, and some of it rafted mighty high at that, was more than I could see, but he did it—brought it right into Great Whale Post, only to find that I wasn't there, for I had been transferred in the Fall, south to Fort George, (186 miles away). So he kept on down the coast having obtained supplies from the factor on the strength of the sale of the pianola to me, and after the Lord knows how many days, he came sledging in one day at nightfall, right into my Post yard, with a *'Chimo'* and a 'Here, *Angercak*, is the box with the many insides.' The thing worked, you'll be surprised to hear, though some of its notes were what Wetalltook called 'sick sounds'!"

CAN MAN CONQUER HIS PARASITES?

An Anthropological Study of Disease as a Menace to Civilization. The Great Parasitic Diseases had Local Origins but Some are Now World-wide. Methods of Combating Disease have been Developed but International Coöperation is Called For

By HERBERT J. SPINDEN

UNITED in an offensive and defensive alliance since the dawn of history, man and his dogs have spread themselves more widely over the earth than any other land animals. Man is a single species but his dogs were bred from such diverse ancestors as the wolf, the coyote, and the jackal. Thus it happens that the second best claim to the blue ribbon term "cosmopolitan" does not go to dogs, but to certain unwelcome and generally invisible organisms which live in the warm interior of the human body and which produce some of those discomforts and disabilities which we call disease.

Man, thus universal host against his will, has blood of about the same temperature at the Poles as at the Equator and the parasites which cause tuberculosis, smallpox, and numerous other ailments are not compelled to recognize either geographical or climatic limitation. They are potentially if not actually cosmopolitan.

As anthropologists see the problem this animal, man, won his way upward among all the living things of the world by three campaigns of aggression. First, he achieved specialization in action by inventing tools and mechanical devices and he overcame the limiting conditions of climate by the use of clothing and shelter. Secondly, he laid the groundwork for dense populations and for those superstructures of group thinking which we call civilizations by the domestication of plants and animals for food. He found his first independent starts in the fruitful tropics of America with maize and in those of the Old World with wheat. Then followed the supplementary civilizations of rice and manioc. High cultures in the temperate zones of both hemispheres waited on the adjustments of tropical plants to meet temperate conditions. To-day many northern nations live largely upon the spoils of trade and especially upon imported food.

We are now witnessing the third great conquest of man, namely, the conquest of the sources of physical and chemical power in Nature. Our fathers put the cataracts and the winds to work, but we have domesticated the lightning and have seized upon the affinities and dissensions of the elements for our further service. We have built machines to replace human muscles in nearly every province of labor and we have learned to drive these machines either directly or indirectly with fossil sunshine and the fossil fats of ancient organisms (for that is what coal and oil amount to). But in raising the fabric of our wondrous industrial age perhaps we have robbed our bodies of ranging ruggedness.

We have gained much but can we hold our gains? To do so we must win a new great war and the trenches and entanglements of this war will not extend merely across France: they will extend around the globe. All the nations must act in accord to save man, his domesticated animals, and his domesticated plants from the engulfing hosts of destructive parasites. In the short scope of this article I wish to show that the world in general to-day bears the threat of all the diseases of the world in particular of yesterday. That is, the evil organisms which were formerly limited to the basic civilizations of wheat, or maize, or rice, have now gone far beyond their original habitat. The Old World and the New, formerly independent in diseases and in economic substances, have pooled their assets and their liabilities.

That is not all. If we are justified in believing that isolated and primitive tribes of men are practically without diseases of parasitic type, then we may conclude that practically all the complicated régimes of pathological parasitism, so far as man is concerned, have come into being in a scant 7,000 years, or let us say the span of a hundred old men touching lives. Indeed, it appears that many diseases are much more recent and that some

have burst out in our own times. We now have high populations in new places and under new conditions, and we will doubtless find that new parasites will not be long in grasping their opportunity.

While yellow fever was probably of American origin and even may have overthrown the civilization of the Mayas in Yucatan, the great disease of America was not yellow fever but syphilis. The proofs of the New World origin of syphilis are overwhelming, yet the majority of medical writers still refuse to recognize the validity of those proofs—which have been unevenly presented—and persist in a blind belief that this disease was anciently known in Asia and Africa. Documentary evidence shows conclusively that it was carried from Santo Domingo in the West Indies to Barcelona in Spain by Columbus on his first voyage, that it was taken to India by the Portuguese (in all probability by Vasco da Gama in 1498); that it shortly afterwards reached the Spice Islands and China and, finally, as late as the middle of the Eighteenth Century, was introduced into the Pacific Islands by such adventurous captains as Cook and Bougainville. The history of the distribution of this disease furnishes a terrifying example of the menace of parasites.

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REMAINS OF A CIVILIZATION THAT SUFFERED UNDER THE ATTACKS OF THE HOOKWORM

Egypt is filled with massive ruins like this of Queen Makere's Temple, at Thebes, built, it is needless to say, by a people full of energy. But later, apparently, the hookworm sapped the energies of this once mighty people, and their civilization declined accordingly

We leave this disease, the story barely suggested, and pass on. Yellow fever is the second outstanding malady of ancient America. It crossed the Atlantic and appeared on the western seaboard of Europe and Africa, but it never reached Asia. The menace of yellow fever is now reduced almost to the vanishing point by international sanitation. Only a few other, and minor, ailments can be ascribed with certainty to ancient America.

Of the parasitic diseases which can be ascribed to the Old World special attention should be given to malaria, tuberculosis, small-pox, measles, diphtheria, scarlatina, typhoid, typhus, cholera, bubonic plague, and the other maladies which join with syphilis in

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WHERE DISEASE IS OFTEN RAMPANT

The British in India have done much to improve health conditions in the land, but religious customs, such as bathing in the Ganges, and even bathing the dead in the sacred river before cremation, as they do at the Burning Ghats at Benares, pictured here, make possible the rapid spread of disease

making up the venereal group. All of these (and others which might be mentioned) counted many victims on this side of the Atlantic. Practically all are dense population diseases, and none is spontaneous. In every instance there is continuous existence for the parasite usually in man or some other animal.

The Old World records for small-pox extend from China to Ireland in the first millenium after Christ. Indeed, it is claimed that the Chinese learned the secret of vaccination before Jenner made a scientific demonstration of its value. Here the human disease is linked with that of a domestic animal and it doubtless was observed that persons exposed to cow-pox became immune to small-pox. Certain other human ailments are linked with domestic animals, such as rabies and dogs.

The records of the introduction of small-pox into the New World demonstrate beyond a reasonable doubt that this disease was unknown to the American Indian. Its attacks have been tremendously fatal and epidemics as a rule have followed immediately after the first contact between the white man and the native tribe. This winged curse from Pandora's box swept away the aborigines of the West Indies during the first years of Spanish colonization. The army of Narvaez, sent to subdue Cortes, was captured intact and went to swell the forces arrayed against Montezuma. A Negro in this army brought something more deadly than bullets; he brought small-pox for the highlands of Mexico. Cuitlahuac, the successor of Montezuma died of this plague in 1520 and we find the record of the disease simply but unmistakably pictured by a human body covered with spots which represent the scabs.

The Indians of our northern Plains have

left similar pictures in their records on buffalo hide where a little picture represents the outstanding event of each year. Epidemics of small-pox sometimes carry a sign indicating intestinal pains in addition to the tell-tale scab markings. The earliest record of small-pox among the Sioux is for the winter of 1734, this date corresponding closely with the first establishment of French trading posts on the Assiniboine river. Perhaps the most disastrous and widespread small-pox epidemic was that which began in 1837 from infection introduced by a steamboat on the Missouri. In the first year it cut the Mandans down from a tribe 1,600 strong to a remnant of 31. In 1838 it struck the Pawnee and in 1839 reached the Kiowa.

Measles has also been extremely destructive among the Indians. It is pictured in Indian records in about the same way as small-pox, but is often indicated as coming in the summer time. One of the last epidemics pictured in a Kiowa record is typical. It broke out in school and instead of isolating the children they were sent home. The result was pitiful, over 15 per cent. of the tribe being carried off. In 1900 I witnessed the ravages of measles among the western Eskimo: in some cases the death rate amounted to half the population of the native villages.

Tuberculosis, another Old World curse on mankind, was in all probability unknown in America before the coming of Europeans. It now is making heavy inroads on our remaining aboriginal population. We send our sufferers from this disease down into the Southwest, scarcely realizing that the natives of that section of the country who have been bred down to a perfect climate are as susceptible there as white men are in the most crowded tenements.

The slow diseases which sap vitality do

THE NATIVES OF NEW MEXICO ARE VERY SUSCEPTIBLE TO TUBERCULOSIS

Tuberculosis patients from the East are greatly benefited if they go to New Mexico, but if the New Mexican becomes infected he has no better place to go. Because man's blood is practically the same temperature whether he is at the Equator or the Pole the parasites which trouble him are able to accompany him anywhere, and the complex trade routes of to-day can scatter almost any disease all over the world

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WHERE SIMPLE METHODS HAVE ALMOST ELIMINATED TYPHOID

Long years of experience have taught the Chinese that they are safe from typhoid only if they cook everything they eat and boil all the water they drink. Thus the dense population even of the great cities is able to keep fairly free from this disease. There are diseases, however, that take a huge toll of Chinese life because more complicated methods are necessary for their prevention

not have spectacular records, but in the long run the damage which they do is incalculably greater than that of epidemics. Malaria, for instance, is a greater obstacle to-day to the development of the tropics than yellow fever ever was, although the latter could accomplish much at one fell swoop. For one thing the effects of malaria reach around the globe and into nearly all its habitable parts.

The three kinds of malaria are described by the Greek physician Hippocrates and the names which we use to-day are of Roman origin. The two-day fever is called tertian, or third, because the Romans counted both ends of any numerical sequence, and the three day fever is called quartan, which means fourth. There is no good evidence that malaria existed in America before the discovery. We do not find terms for it in American Indian language nor do we find any records that the early explorers in Central and South America suffered from this disease. For instance Cortes led an army across the base of the peninsula of Yucatan, through a region of swamps and flooded streams where to-day malaria is rife in every village, yet we find no mention of this illness among any of his troops or Indian burden bearers.

Hookworm, another debilitating disease, has taken the energy from the human inhabitants in many areas. One type of it is pretty clearly of African origin, having been introduced into America by the slaves. The percentage of inhabitants infected by hookworm and malaria runs from 50 to 100 in some regions.

This would be a doleful picture if there were no relieving high lights of achievement. Medical science began with the herbs, incantations, and magical formulae of the medicine man. It is still able to effect what appears to be magic. Nearly all primitive people have general as well as individual curings, which are ceremonial affairs, and in the former a communal attack is made upon all the forces of evil. Modern research into human disease has demonstrated that the general curing is still necessary. The growth in the facilities of transportation which made diseases cosmopolitan was at the same time responsible for the formal development of the quarantine as a repressive measure. In some of the earlier epidemics we read of dead lines being established.

It is not too much to say that the United States gave the world the two most striking demonstrations of sanitation in the tropics, first in the eradication of yellow fever from Havana and subsequently from all Cuba, secondly in the reduction of malaria and other diseases in the Canal Zone. The story of the epochal experiments of the Yellow Fever Board of the Army has often been told, and the work done by Dr. Gorgas is generally pro-

claimed as the new factor which turned French failure into American success at Panama. As a result of the Gorgas campaign all the so-called tropical diseases were turned back, the figures for malaria being as follows:

Malarial Cases per 1000 on the Canal Zone

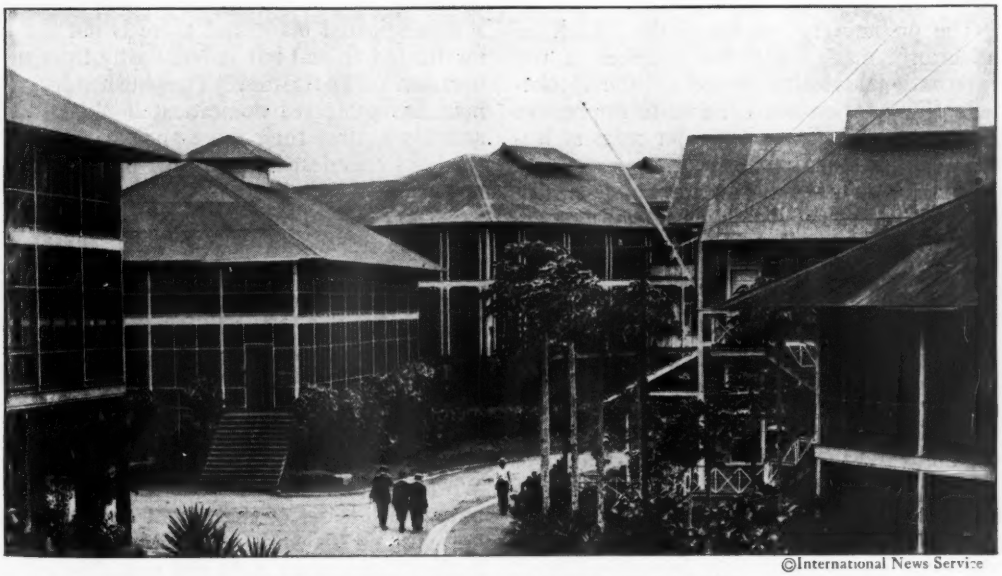
1906	821	1912	110
1907	424	1915	51
1908	282	1917	14

In other words the war on malaria was more than 98 per cent. effective.

The sanitation of the Canal Zone was backed by the long pocket of the Government. But we have another American example, of which we may well be proud, in the sanitation accomplished by a great commercial organization as part of its day's work. The United Fruit Company has banana and sugar plantations in Central America, Colombia, Jamaica, and Cuba, mostly in humid lands which a few short years ago were covered with dense jungle, and which were popularly regarded as scarcely habitable. The sanitation carried out by this company includes draining and filling land, especially in the vicinity of villages, building screened houses, building hospitals and dispensaries, and educating its workmen in proper ways of living not only as regards exposure to disease but also as regards diet. The vital statistics show that in 1921 this company was medically responsible for 150,000 persons cultivating intensively 400,000 acres of land and the death rate was 7.44 per thousand. In connection with this excellent showing it must be remembered that initial efforts in new locations must be made without much protection.

The problem of sanitation calls for the broadest and most generous coöperation between nations. The Rockefeller Foundation has opened the international campaign against disease, wisely expending its vast funds in the support of medical education in various countries as well as in field work against yellow fever, hookworm, malaria, tuberculosis, etc. Whenever possible national commissions are appointed and the American institution furnishes experienced men and a plan of work.

By a series of typical field experiments the scientists of this institution have demonstrated clearly enough how malaria can be reduced and ultimately destroyed at small expense to communities. I summarize the record in the case of Hamburg, Arkansas, where control operations were begun in April, 1917. The tabulation is based on physician calls



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DISEASE-FREE LIVING QUARTERS IN PANAMA

Before the Americans went to Panama the country was a pest hole. Years before, the French had tried to dig the canal and had failed because of malaria and other diseases. The sanitary work of the Americans rid the country of these diseases and now the health conditions are excellent

and is not therefore a complete record of the presence or absence of the malarial organism. Nevertheless it demonstrates a tremendous gain. Originally there were some winter cases although no mosquitoes were then abroad. These were the cases of the chronic type. The increase during the summer was mostly caused by mosquitoes tapping these chronic carriers, acquiring the disease themselves, and then infecting fresh batches of human beings.

Malaria is hard to eradicate because man himself is the long-term reservoir host of the malarial organism. Science has provided relief, but ignorance and indifference—especially the latter—block its full operation. The chronic sufferer from malaria is a perambulating menace to all other human beings and an obstinate enemy to himself. The comparatively innocent *anopheles* mosquito takes all the blame and the aggressive effort of sanitary engineers is mostly directed against these short-term carriers because it is easier to fight mosquitoes with fish than to fight human psychology with logic. Yet the world can well afford to get along with fewer mosquitoes, fewer fleas, fewer rats, etc., because the rôle which these play in the distribution of disease makes them a constant menace. Rats can act as reservoir hosts to 10 or 12 maladies which also attack a human being.

The preliminary returns of the attack on hookworm made under the auspices of the International Health Board of the Rockefeller Foundation are even more impressive because they indicate a greater mass of human energy to be retrieved.

On the governmental side, the Public Health Service of the United States has had long experience in handling disease. During the war an Interdepartmental Board was formed to treat disease in relation to military and naval efficiency. This Board made a most impressive showing in its general campaign against venereal diseases and the conditions of shame, ignorance, and quackery which permitted these secret diseases to destroy both the body and the soul. But a propaganda of frankness and enlightenment began with the military necessity of protecting our soldiers and sailors from infection, and since the war the work has been greatly broadened by a policy of coöperation between national and state governments. Women's clubs have also joined in the movement.

I have spoken of the battle which parasites wage against the welfare of man, an incessant, insidious battle with innumerable enemies making secret approaches through the air and soil, through the food we eat and the water we drink, through insects, vermin, rodents, and other forms of life which touch our lives. The battle of parasites against civilization is not restricted to the attack on man himself. As important as this—if not more important—is the attack of parasites upon civilization's line of communication with food and other economic necessities. We must remember that civilization rose out of assured food supplies and if these supplies are lost the results of ordered coöperation in human society are also lost.

The European corn-borer, which recently appeared in New England, threatens America with losses which stagger the imagination. A few years ago the banana blight suddenly cut in half the agricultural wealth of Costa Rica and since that time has ravaged many a plantation on all shores of the Caribbean. The banana is an Old World fruit, but a previously unknown enemy lurking in the soil of America has found it. The new mosaic disease of sugar cane hangs like a cloud over Cuba, more portentous than politics, more destructive than graft. The boll-weevil cuts down the wealth of the South. There is not a domesticated plant and there is not a domesticated animal but suffers vastly from the invasion of parasites. The husbandry of man has protected domesticated plants and animals against their more ancient and conspicuous enemies; it must now protect them against new enemies infinitely more destructive than the old ones.

The answer to this general layout of facts—it being held in mind that we have only glimpsed a few of the more important details—is coöperative effort, between cities, between states, between nations. If this cooperative effort is carried through, it will not be long before the deficits of the World War are wiped away in higher human efficiencies, if it is not carried through, the deficits of the World War will be a pittance when compared with losses of the war of the parasites on man and his works. The way of winning is clear. We must fight the parasites which are the causative agents of disease in man, and in all his economic family of living things.